NATIONAL INSTITUTE OF SIDDHA

Chennai - 47

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY, CHENNAI - 600 032

A STUDY ON

IYA ERAIPPU

(DISSERTATION SUBJECT)

For the partial fulfillment of the requirements to the Degree of

DOCTOR OF MEDICINE (SIDDHA)

BRANCH I- MARUTHUVAM DEPARTMENT

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CERTIFICATE

This is to certify that I have gone through the dissertation submitted by Dr**.** S.BHAVANI, a student of final M.D.Siddha, branch I, Maruthuvam department, National Institute of Siddha, Chennai - 47 and the dissertation work **"A study on Iya Eraippu"** has been carried out by the individual only. The dissertation does not represent or reproduced the dissertation submitted and approved earlier.

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INTRODUCTION

The siddha system of medicine is our heritage knowledge on health care, a treasure of indigenous medicine. Siddha system of medicine is being practiced from the birth of our Tamil language. It has its own lot of numerous specialities & incomparable to other systems of medicine. Inspite of the great & spectacular advances in modern medical sciences in the war against diseases & disorders the mankinds rely on traditional system of medicine and seeks the usage of medicinal plants & their products for curing ailments.

Herbal medicine believes that the ailments results only in case of internal uncleanliness and tries to root them. Siddha system of medicine excels in the manner in which it deals with the human body and its diseases. It tends to lay emphasis in prevention of diseases rather than curing it. It also encourages one to maintain his health by paying attention to balance one's life through diet and lifestyle. In enables one to understand how to create balance of body, mind and soul according to one's own individual constitution and how to make life style changes to regain the balance that they have lost in their physical living and maintain the vital force essential for leading successful life.

In siddha system of medicine the tridoshas namely, vatha, pitha and kapha are essential constituents of the living body which are responsible for regulating all the body functions.

"உயிர்க்காதாரம் உயிர்தாதெனவும்

முப்பிரிவாகி முக்குணமணுகி

உடலையும் உயிரையும் மோம்பிக்காத்து

வருமென் முதுமறை வகுக்குந் துணிபே"

In healthy persons, the tridoshas maintain proper functioning of all the organs and tissues depending upon individual needs. Siddha system of medicine lays great emphasis on early changes caused by disturbances of doshas in the whole body, as a result of excessive turnover of these substances and it is at these stages that one can prevent the development of disease in a full fledged manner.

Siddha system of medicine is also known for its simple principle.

"உணவே மருந்து, மருந்தே உணவு"

Which is also said by Hippocrates as

"Let thy food be medicine

And the medicine be thy food"

The two words food & medicine denote the same meaning. In health it is taken as food and taken as medicine in ill- health where its dosage only differs.

The formation of six tastes from five elements (panchabuthas) & their role in siddha medicinal formulations & principles are well known.

It is of paramount importance to acquire international acceptance of our own siddha system of medicine is of utmost importance & demanding in this current situation. This brings the need for scientific investigation of herbs used in siddha system using the modern parameters & methods of study like phytochemistry, biochemical analysis, pharmacological study & clinical trial. These all steps, one or the other will give us new insights and understanding into the rationale for the use of these herbs.

AIM

The drug Ilavangathi choornam chosen from siddha literature is to be studied in 50 Iya Eraippu patients by open clinical trial for the duration of one month. The results and observations have to be documented by means of standard statistical calculations. By this the efficacy of a siddha drug which in unrevealed, yet is to be documented.

OBJECTIVES

1. The Primary objective of this study is to do an open clinical trial on Iya Eraippu noi affected individuals with the trial drug. Drug- Ilavangathi choornam 4 g t.d.s. with honey, after food. Taken from the literature Sigicharathnadeepam.

2. To make a detailed study of various siddha literatures like Yugi vaidya chinthamani 800, Agasthiyar 2000, Theraiyar Vagadam, Jeevaratchamirtham, etc.

3. To analyse the correlation of etiology, classification, signs & symptoms of Iya Eraippu noi in siddha aspect with Bronchial asthma in modern aspects.

4. To have an idea about the incidence of the disease with regard to age, sex, socio-economic status, occupation, family history and paruvakalam.

5. To study how the disease Iya Eraippu Noi alters the normal condition under the headings mukkutram, poripulangal, seven udalthathukkal, Neerkuri & Neikuri and Envagai thervu especially, Naadi Nadai.

6. To make a detailed clinical evaluation of the disease by a careful examination on etiology, signs & symptoms, complaints, past history of patients to allergic disease, sinusitis, or occupation, treatment and prognosis during the course of the Iya Erappu noi.

7. To utilize the possible modern evaluatory equipment and lab investigation to conduct the clinical trial.

8. To evaluate the biochemical, phytochemical & pharmacological studies of trial drug to establish the efficacy.

REVIEW OF LITERATURES

SIDDHA

The disease Bronchial asthma can be correlated in Siddha as Iya Eraippu or Mandara Kasam. Here, we can discuss on various author's view on Eraippu noi, beginning from their etiology, classification, prodormal signs & symptoms, diseased state, prognosis of disease, etc.

Etiology:

According to Yugi vaidya chinthamani – 800,

"வேகின்ற வதிகமாம் புகையினாலும்
மீறுகின்ற பாணத்தால் மிகுக்குந்தானே
பாணத்தால் பரமாக்கினி மிகுக்கையாலும்
பார மாமிசங்கள் புசிக்கையாலும்
தாணத்தாற் சஞ்சாரம் தவிர்க்கையாலும்
சரிபடா பதார்த்தங்கள் புசித்ததாலும்
தீணத்தாற் புசியாமலிருக்கையாலும்
சேயிழையார் மேலிபைஞ் சிதைவதாலும்
மாணத்தால் மாதுக்க மடைவதாலும்
மதத்தாலுஞ் சுவாசமது மருவுங்காணே"

- Smoke and fumes
- Excessive intake of cold & hot drinks
- Due to disturbances in digestion
- Excessive intake of non- vegetarian food
- Consumption of improperly cooked food
- Not being generous
- Excessive sexual indulgence

According to siddhar Kaiyezhuthu pirathi,

"கால பெருக்குணவுப் பொருள் தண்ணீர் மாறல்
கருதிருமல் மிகல் வாந்தி குளிர்ந்த காற்று
மால் செய்து நாள்தோறும் வருந்தும் காய்ச்சல்
மந்தன முயிர்நிலையில் அடிகள் தாக்கல்
ஏலசீதபேதி விடபாண்டு புகைகள்
இலகிய நெல்லாதி மணிச் சுணையுட் செல்லல்
மேல் வழியில் சிலவரினு மிரைப்பாம் நோயு
மேவுமென முனிவர்கள் விளம்பினரே"

- Excessive intake of food at inappropriate time
- Change in drinking water
- Cough
- Vomiting
- Cold air
- Fever
- Trauma to vital organs
- Dysentery

- Anaemic due to toxic substances
- Fumes and smoke
- Pollens from grasses etc., any of the above are the Causes which may induce asthma

According to Jeevarakshamirtham

- Excessive cough
- Intake of substances which promotes vatham
- Diarrhoea & vomiting
- Anameic due to toxic substances
- Exposure to cold climate & cold air
- Trauma to vital organs.

The modern science gives atopic etiology for Bronchial asthma, which our siddhars have also defined as an important cause which was referred in Agasthiyar Guru Naadi Sasthiram.

"உற்றிடும் உலகத்தோருக்கு உறுபல வியாதியெல்லாம்
மற்றிடும் குணங்கள் தன்னை பகர்ந்துரை செய்ய வேண்டில்
ஒத்திடும் சன்னராலும் உடலுயிருளவாலும்
அத்திமா மலையில் வாழும் மாமுனி வகுத்ததாமே"

So as the Thirumoolar says,

"பேர் இளமை இன்பம் பிணிமூப்பு சாக்காடு
ஆறும் கருவில் அமைப்பு"

Prodormal signs & symptoms

A siddha maruthuva Kaiyezhuthu pirathi says, about the prodormal signs and symptoms as

"மார்பில் விலாவிரண்டில் மற்றுமிரு நெரியில் சேர்ந்து
வலித்தல் திணறல் அஃதால் மூச்சு
உப்பல் வயிற்றில் உருதுவே முற்குறியாச்
செய்யு மிரைப்பு நோய்க்கிதனைச் சேர்"

- Pain in the chest
- Pain in the intercostal region
- Dyspnoea
- Distention of abdomen
- Followed by asthmatic attack

Theraiyar, says in his Theraiyar vagadam as follows

"வந்திடும் வெள்ளோக்காளம் வாயது தித்திப்பாகும்
நொந்திடும் பிடரிமண்டை மந்தமும் மிளைப்பினோர்க்கும்
முந்தவே தலைதா னொந்து சரீர முகமுங் குத்தும்
கந்தரத் தொண்டை நாசி கரகரன்றுடனே தும்மல்"

- Nausea
- Sweet taste in the mouth
- Pain in the occipital region
- Indigestion
- Headache
- Pricking pain in the body, face

- Irritation in throat, nasal region
- Sneezing
- Sneezing is followed by dry cough

In siddha maruthuvam, asthma is also compared to mandarkasam or kulir Erumal Noi.

"தானான தூரயதோர் நாசி தன்னில்
சலநோய்நீர் தான் விழுந்து தும்ப லுண்டாம்
மானான மார்பு நெஞ் சடைத்து மூச்சு
வலுவாகப் பாம்புபோல் சீற லாகும்
கானான கண்டமொரு முகமுங் காதுங்
காயமதுங் கசிவாகி வியர்வை யாகும்
ஏனான இருமலொடு கோழைக் கம்மல்
இரைப்பாகு மந்தார காசமாமே."

- Rhinitis
- Sneezing
- Constriction of chest like sensation
- Breathing sound is like snake snarling
- Sweating over face & body
- Cough with little expectoration
- Dyspnoea are the signs & symptoms of mandara kasam

"மந்தார காசம் மழைமப்பு மார்பு நெஞ்சு
தந்தான மீளை தனியடைத்த குத்திருமல்
தும்பல் வலி நாசிநீர் சுரமிளைப் பாசமதி
பொம்மிவரு மென்று புகல்"

- Mandara Kasam occurs due to rain, dyspnoea followed by constriction of chest like sensation, non – productive cough, sneezing, rhinitis, sometimes fever.

Classification:

According to siddha maruthuram, Eraippu noi is classified as:-

1. Vali Eraippu
2. Iya Eraippu
3. Iyavali Eraippu
4. Mukutra Eraippu
5. Mel Nokku Eraippu

Following are the signs & symptoms -

1. Vali Eraippu:

Consumption of food those are not easily digestible.
Wandering in hot sun.
Consuming tubers like potato.

All the condition above stated will cause vitiation of vali dosha & together with it, if the person is physically debilitated may result in difficulty in breathing in & out.

- A sensation of vaccum in the chest.
- This condition does not give much grief to the patient.
- This condition can be easily curable.
- This is also known as ‘soothira swasam’.

2. Iya Eraippu:

- Consumption of food causing Kapha dosha.
- Due to rain and cold air vitiated kapha reaches head results in nasal block, rhinitis followed by constriction of chest difficulty in inspiration and expiration.
- If expectoration is possible with cough, the difficulty in breathing will get relieved.
- Otherwise, the patient gets dyspnoeic, wheezing.
- Patient is unable to lie down supine.
- Sweating in forehead, discoloration of face, anxious look due to dyspnoeic state, cold peripheries, dryness of mouth, severe dyspnoea, unable to lie down supine.
- These are the signs & symptoms characterstic of Iya eraippu or ‘Thamakka Swasam’.

3. Iya Vali Eraippu:

In this diseased state, both Iyam & vali dosha together get deranged and results in following signs & symptoms-

- Vali dosha gets deranged and along with Udanan, causes difficulty in inspiration & expiration.
- Also causes constipation & oliguria, distention of abdomen.
- Dryness of mouth, redness of eyes, sweating, state of delirium & giddiness.
- This condition is called ‘vitchinna swasam’.

4. Mukutra Eraippu:

The tridoshas together gets deranged and alters the normal state of udanan, abanan, vyanan & samanan results in emaciation of seven udalthathukkal thus resulting in eraippu noi worsening the patient's condition.

- Before setting in wheezing attack causes severe dysponea and anxiety.
- The act of expiration is compared to breathe out by a big cow.
- Constriction of chest, syncope, constipation, Oliguria, distention of abdomen, myalgia, delirious state, sweating in forehead.
- This condition is known as 'Maha swasam'.

5. Melnokku Eraippu:

Above four types of Eraippu being refractory to treatment, leads to chronic state called 'melnokku eraippu'.

This occur due to altered state of udanan causing difficulty in expiration, dyspnoea, protrusion of eyeball, dryness of mouth, unable to lie from supine, air hunger by opening his mouth.

At this state immediate treatment should be given, otherwise patient face gets cyanosed, keeps his mouth open gasping for want of air, syncope & results in death.

In Jeevarakshamirtham, the disease is classified into 5 types

1. Soothira Swasam
2. Thamakka Swasam
3. Vitchinna Swasam
4. Maha Swasam
5. Oorthuva swasam

Sarabendra vaidya muraigal classifies swasa noi as 7 types

1. Maha swasam
2. Oorthuva swasam
3. Chinna swasam
4. Thamaka Swasam
5. Soothira swasam
6. Pirantha maha swasam
7. Santha maha swasam

Vaidya sara sangraham classifies as

1. Manthara Eraippu
2. Swasa kasam
3. Pachai udambi ledutha swasakasam

According to Anubhava vaidya devaragasiyam the disease is classified as

1. Arpa Swasam
2. Thamaraka swasam
3. Vitchinna swasam
4. Maha swasam
5. Oorthurva swasam

Agasthiyar 2000 says about Mandarkasam as

"மந்தாரகாசம் வந்தால் வாங்கிடுஞ் சுவாசமேலா
யித்தார மெய்ச்சுரமே காணுமிளைத்திடு மிருமல் மெத்துஞ்
சந்தாவுடம்பு தலையுடம்பு தளரவலிக்கு மிளைப்பாகும்
யிந்தாதுடம்பு நெஞ்சுமுகம் பத்திவலிக்கும் பண்பிதுவே"

"இக்கண மதனேடொக்க விருமலு மிளைப்புண்டாய்
சிககென நெஞ்சிகட்டிச் சீறிடு மிறுகிப் பற்றி
பக்கமந் தாரந் தன்னில் பற்றிய காசமாமே"

- Dyspnoea
- Fever
- Cough
- Myalgia, headache
- Pain in the chest
- Coughs, dyspnoea, constriction of chest are the symptoms follows before an asthmatic attack.

He also specifically says about kapha mandara kasam as

"துய்யதோர் நாசிதன்னில் தும்மலு மிகவுண்டாகி
நொய்யு நீராய் விழுந்து நெஞ்சு நோவுட னீழைவாங்கு
அய்யின்மந் தாரகாசத் தடவிதுதானே நீகேள்
செய்யுமா முனிவர் சொன்ன குணமிது தெரிந்து கொள்ளே"

- Sneezing
- Rhinitis
- Constriction of chest
- Cough, dyspnoea

In Athmaratchamirtha vaidya sarasangiragam,signs & symptoms of mandara kasam is stated as follows

- Itching sensation over face & ear
- Sneezing, rhinitis
- Cough, dyspnoea
- Pain in the chest & intecostal region
- These symptoms are aggravated during winter season
- Flatulence, giddiness, etc.,

MUKKUTRA VERUPADUGAL – SIDDHA PATHOLOGY

In Siddha system of medicine the manifestations of all diseases are the result of derangement of tridoshas – vatha, pitha and Kapha.

Noi Naadal Noi muthal Naadal:

"தொண்டையென்பின் சந்திநிறவும் சோற்றுப்பை நாசிதலை
ஓண்டொடிய வாமத் துளபித்தத் - தொண்ணீர்ச்
சுரப்பி யிரசதாது சுத்தநிணம் நாவும்
தரமான வையத் திடம்"

-மருத்துவ தனிப்பாடல்

From the above quotation,it is clear that the stomach is one among the sites of kapha. The function of kapha in gastro intestinal tract is to tolerate the thirst and appetite which results in anorexia and indigestion. It produces `amam' in the stomach which in turn also vitiates kapha. Thus the vitiated kapha is responsible for the respiratory disorder.

This is also clearly understood by the following phrase.

"கபத்தினையன்றி காச சுவாசங் காணாது"

- தேரையர்

Excess of kapha in the respiratory organ affects the melnokkukal and uyirkal, due to this air is unable to reach the

terminal point of respiration produces gasping and labored breathing.

Few authors say, Eraippu noi is caused by deranged vatha. It was admitted because the obstruction of air in the respiratory tract is abnormal. Excessive consumption of vatha promoting diet induces the pitha. This vitiated pitha produces more heat & this further reaches the head resulting in rhinitis, heaviness of head and neck & sneezing. This is indicated by the following quote-

"பித்தம் மிகுந்தால் ஈளை இருமலும் பெலத்து நிற்கும்
உற்றிடும் ஐயநாடி ஓங்கியே துடித்து நின்றால்
பற்றிடும் இருமல் ஈளை பதறியே இரைப்புண்டாகி
மெத்தவே கோழை வாய் மிகுதிப் படும்"

Naadi Nadai:

"முப்பிணி மருவி முனிவு கொள் குறிப்பைத் தப்பா
தறியும் தன்மையும் வாத பித்தவையம் பிரிவையு
மவைதாம் ஏறியிறங்கி இணைந்துக் கலந்துமாறி
மாறிவரும் செயற்கையாற் பிணி நேர்மையறிந்து
நீட்டு மருந்தே சீரியதாமெனச் செப்புவர் சித்தரே"

"மூன்றிலொன் றுயர்ந்ததை முன்னரறிந்து
முந்தியதனை யொழித்திடு மருந்திடு
தணியும் நோயின் தந்திரமிதுவே
பேணிக் கணித்திடின் பிறவாய் பின் குணம்"

From the above quotes, Naadi examination is the best method to elucidate the patient's condition to do appropriate treatment. Also the three humors vatha, pitha & kapha together from the Naadi & their variation from regular function results in diseased state.

The various types of Naadi Nadai in the disease Iya Eraippu:

The Manifestations of Mandara kasam due to deranged Iya Naadi:

As per siddha Maruthuvam, the primary cause of this disease is due to deranged kapha, which plugs the airways and results in difficulty in breathing.

"தானமுள்ள சேத்து மந்தானிலிகில் வெப்பு
சயமீளை**யிருமல் மந்தார காசம்**
ஈனமுறுஞ்சந்தி விடதேதோடம் விக்கல்
யிருத்ரோகங்கரப்பான் விரண தோடம்
மானணையீர் சூலை திரள் வியாதி வீக்கம்
வருஞ்சத்தி **சுவாசம்** நெஞ்சடைப்பு தூக்கம்
ஏன முறுங்காமாலை பாண்டு சோபை
ஏழு சுரங்கள் பலதுக்கும் விட முண்டாமே"

"ஐயமே கதித்த போதறியவே பொருமல் காணும்
நையு**மந்தாரகாசம்** நளிர் குளிர் விக்கல் சத்தி,
செய்யுமா மூர்ச்சடைப்பு தீதறு காசரோகம்
தொய்யுமா மினைப்பு காசம் தோன்று மென்றரன் சொன்னாரே"

ப.சி. நாடி

"விடங்கிய வைய **மேலிரைப் பேற்றிடும்**
தடங்கியிருமிடுந்தன் விலா விரண்டும் நோகும்

திருமூலர்

"உற்றிடும் ஐயநாடி ஓங்கியே துடித்து நின்றால்
பற்றிடும் ஈளை பதறியே இரைப்**புண்டாக்கி**
மெத்தவே கோழை வாய் மிகுதிப்படும்"

அ.கு

Iyapitha Thontha Naadi

"இடமான சேத்துமத்தில் பித்தநாடி
எழுந்தணுகில் விடமுடனே வீக்கமுண்டாம்
திடமான குளிர் காய்ச்சல் மஞ்சள் நோவுந்
தேகத்திலுளைச்சலிளைப் பிருமல் வாந்தி
விடமான நெஞ்சடைப்பு **சுவாசம்** விக்கல்
வெகுசுரமும் நாவறட்சி பாண்டு ரோகம்
அடமான குவளைரத்த மதிசாரந்தான்
அணுகி வெகுபல நோய்க்குத் தடங்கண்டாயே"

According to few siddhars school of throught, the primary cause of the disease is due to deranged vali dosha, as it affects the free flow of air through the airways for breathing.

Mandara Kasam due to vatha Iya thodam:

"பாங்கான வாதத்தில் சேத்தும நாடிப்
பரிசித்தால் திமிர் மேவு முளைச்சலாகும்
தீங்கான இருமலுடன் சந்நி தோடம்
சேர்ந்த விடம் வெடிசூலை யிருத்ரோகம்

வாங்காத ஈளை **மந்தாரகாசம்**
வலியுடனே புறவீச்சுயுள் வீச்சு வீக்கம்
ஓங்காணுச்சுர முடனே **சுவாசகாசம்**
உண்டாகும் வெகு நோய்க்கு முறுதிதானே"

Due to ushnam with deranged Iyam causes swasakasam as per sathaga Naadi

"கதிப்பான சேத்துமத்திலுட்டிணங் கூடில்
கலந்த குணஞ்சயமிருமல் **சுவாசகாசம்**"

Vayu with deranged Kapha also can cause swasakasam says sathaga Naadi

"தொந்தித்த சேத்துமத்தில் வாயு கூடித் தொடர்ந்த
குன்மம் நெஞ்சடைப்பு **சுவாசகாசம்**"

Seethalam with deranged Iyam causes swasam

"அடைவான சேத்துமத்தில் சீதளம் பற்றில்
அணுகினால் **சுவாசமடைப்பு**யிளைப்பு மூர்ச்சை.."

Dietary recommendations & restrictions for Kapha constitution & patients by siddhars-

"வேளை மணத்தக்காளி மென்சீதை சக்ரவர்த்தி
பீளை வசலை சுக்கு பெண்சுணங்கள் - வேளையிலை
செந்தளிர் களைக்கீரை செய்வர் கபதேகர் நிதம்
வந்தனி யுணத்தான் மகிழ்ந்து"

ப.கு.சி

"கத்தரி பேய்ப்புடல் வரை யிருபாகல் பருங்களா கண்டகாரி
ஆத்திக் காய்களும் வருக்கைமா பயற்றை கரையால் பீர்க்கரும் பிஞ்சுவேர்
மொய்த்த சூரணங் கதலித் தண்டுகளைப் பூமுலிங்கி முருக்கரும்பும்
அத்தி பூசினிக் காயருள்ளி வள்ளியுங் கபத்தோர்க் காணமாமே"

ப.கு.சி.

PHYSIOLOGICAL ANATOMY

The organs of respiration consist of the respiratory passages and the lungs. The respiratory passage consists of the nasal cavities, pharynx, larynx, trachea, bronchi & bronchioles. The terminal divisions of the bronchioles open into the gas exchange unit, the alveoli.

Tracheo – bronchial Tree:

The trachea is a tubular structure about 10 cm long and 1.5 cm in diameter. It begins at the lower border of the larynx and entering the thorax, it divides into two branches-the right & left bronchi and each bronchus enters the corresponding lung at the hilum. The lumen of the trachea is kept patent by a number of C-shaped rings of cartilage which are deficient posteriorly. The gaps in the posterior wall are bridged by fibroelastic tissue and smooth muscle. The mucous membrane of the trachea is lined by ciliated columnar epithelium.

The Lungs:

The lungs, one on either side, are large cone shaped spongy structures which occupy most of the thoracic cavity.

They are comparatively light because of their content of air (right, approximately 600 g; left 550 g in a healthy adult).

The lungs contain a high proportion of elastic tissue. This elasticity is responsible for most of the expiratory force in quiet respiration. Each lung lies free in its own pleural cairty attached only to the mediastinum by its root.

The substance of the lung is formed by the numerous branches of the respiratory tract which form the bronchial tree, and several million airspaces which form the bulk of the lung; vascular, lymphatic, nervous and connective tissue form a smaller portion.

Lobes of lungs:

The left lung is divided into two lobes by deep oblique fissures. It extends into the lung almost to the hilus, and separates the inferior and superior lobes. The superior lobe forms the apex and anterior margin of the lung. The inferior lobe makes up the diaphragmatic and the greater part of the posterior surfaces.

The right lung is divided by a similar oblique fissure. This separates the superior and middle lobes from the inferior lobe. A second horizontal fissure extends from the anterior margin horizontally backwards to meet the oblique fissure in the mid axillary line. This fissure separates the wedge - shaped middle lobe from the superior lobe.

Bronchi and Bronchioles:

Each main bronchus after entering the lungs divides into secondary bronchi, three on right and two on left, giving to each

lobe of the lung. Each secondary bronchus or lobar bronchus divides into segmental bronchi supplying a bronchopulmonary segment of which there are ten in the right & eight in the left lung.

The segmental or tertiary bronchi further divide several times, with progressive reduction in the length and diameter, giving rise to bronchioles with a diameter of 1 mm or less. The bronchioles branch further, the smallest subdivision being the terminal bronchiole with a diameter of about 0.5 mm. It has been estimated that the number of divisions from the tracheal bifurcation to the terminal bronchiole is 16. As branching occurs with a reduction in the diameter of each succeeding division. The total cross sectional area increases enormously from 2.5 cm^2 in the trachea to over 10,000 cm^2 at the end of the alveolar ducts. The bronchial tree upto including the terminal bronchiole is purely a conducting pathway for the passage of air. Respiratory gas exchange does not occur in this region and this portion is referred to as the ‘anatomical dead space’.

Gas exchange apparatus:

The terminal bronchiole divides into the respiratory bronchiole. The respiratory brochioles gives rise to a number of short passages called the alveolar ducts. These open into wider alveolar sacs, on the walls of which are located the pulmonary alveoli. Some alveoli are present in respiratory bronchioles, but alveolar ducts are fully lined by alveoli.

BRONCHIAL SMOOTH MUSCLES:

The bronchial smooth muscles are present in the submucosal coat, appears in histological section as two helical tracts which run in opposite direction along the bronchial tree. They are innervated by the vagus and sympathetic nerves. Stimulation of the vagus causes contraction of the bronchial muscles resulting in broncho constriction. Bronchodilatation results from stimulation of sympathetic nerves, which relax the smooth muscles

Blood vessels:

The branches of the pulmonary artery distribute venous blood to the lungs. There is a branch of the pulmonary artery to each lobe, bronchopulmonary segment, and lobule of the lung. The terminal capillaries lie in the walls of the alveoli and respiratory bronchioles where gaseous exchange takes place between the blood and the air.

Pulmonary function tests:

Pulmonary function tests are very useful for evaluation of lung functions in respiratory disorders. Being physiological tests, they can only indicate whether the disease process has caused an impairment of function; they may not be able to detect early stages of the disease in which function has not been appreciably reduced. They also cannot make a specific clinical diagnosis. But they give an objective assessment of the functional status of the respiratory

system, and indicate the nature and extent of functional disturbance in disorders associated with pulmonary impairment and disability. Serial measurements are useful in following the course of disease, evaluating therapy and determining prognosis.

TEST FOR VENTILATOR CAPACITY:

The simplest tests of dynamic ventilatory function are tests of forced expiration. A spirometer is used for these tests, and the procedure is called spirometry. Nowadays, computerized spirometers are available which give a print out of the data, as well as the predicted values.

PULMONARY VENTILATION AND LUNG VOLUMES:

Pulmonary ventilation is the process by which fresh air from atmospher is drawn into the lungs during inspiration on an approximately equal volume of air is expelled during the subsequent expiration. Being a dynamic process, it is best described as the rate of movement of volume of air. However, it is convenient to define at this stage the quantities of gas in the lungs at different levels of the respiratory act. These can be expressed in terms of lung volumes and lung capacities.

LUNG VOLUMES:

There are four lung volumes which do not overlap with one another.

1. TIDAL VOLUME (TV):

It is the volume of air inspired or expired during one respiratory cycle. TV in adults is about 500 ml during quiet breathing.

2. INSPIRATORY RESERVE VOLUME (IRV):

It is the maximum volume of air that can be inspired by a forced inspiration after a normal inspiration. It is about 1400 – 2200 ml in males and 1000-1800 ml in females.

3. EXPIRATORY RESERVE VOLUME (ERV):

It is the maximum volume of air that can be expired by a forced expiration after a normal expiration. It is about 1000- 1800 ml in males and 600 – 1200 ml in females.

4. RESIDUAL VOLUME (RV):

It is the volume of air that remains in the lungs at the end of maximal expiration. It is about 1100 ml in males and 1000 ml in females.

LUNG CAPACITIES:

Four lung capacities are recognized and each includes two or more lung volume.

INSPIRATORY CAPACITY (IC):

It is the maximum volume of air that can be inspired by forced inspiration after a normal expiration. It is about 1800 – 2000 ml in men and 1400 – 2200 ml in women.

VITAL CAPACITY (VC):

It is the maximum volume of air that can be expelled by a forced expiration after a maximum inspiration.

Functional Residual capacity (FRC):

It is the volume of air remaining in the lungs at the end of a normal expiration. The FRC is physiologically very important. If there were no FRC and the lungs were completely emptied during each respiratory cycle, the alveolar PO_2 & PCO_2 will vary widely during breathing and will interfere with diffusion of respiratory gases.

Total lung capacity (TLC)

It is the volume of air contained in the lungs at the end of a maximal inspiration

BRONCHIAL ASTHMA

Asthma is defined as a chronic inflammatory disorder of the airways, characterized by reversible airflow obstruction causing cough, wheeze, chest tightness and shortness of breath. Inflammation of the bronchial wall involving eosinophils, mast cells and lymphocytes, together with the cytokine and inflammatory products of these cells, induces hyper-responsiveness of the bronchi so that they narrow more readily response to a wide range of stimuli. Narrowing of the airways is usually reversible, but in some patients with chronic asthma the bronchal wall inflammation may lead to irreversible obstruction of airflow.

PREVALENCE AND ETIOLOGY:

Asthma is a very common disease with immense social impact. Bronchial Asthma occurs at all ages but predominantly in early life. About one half of cases develop before age 10, and another third occur before age 40. In childhood, there is a 2:1 male / female preponderance, but the sex ratio equalizes by age 30.

From an etiologic standpoint, asthma is a heterogenous disease and genetic (atopic) and environmental factors, such as viruses, occupational exposures and allergens are the factors results & provokes asthma.

Atopy is the single largest risk factor for the development of asthma. Allergic asthma is often associated with a personal and /

or family history of allergic diseases such as rhinitis, urticaria and eczema, with positive wheal and flare skin reactions to intradermal injection of extracts of airborne antigens with increased levels of IgE in the serum.

A significant fraction of patients with asthma present with no personal or family history of allergy, with negative skin tests and with normal serum levels of IgE.

These patients are said to have idiosyncratic asthma or non- atopic asthma.

PATHOGENESIS:

Asthma results from a state of persistent subacute inflammation of the airways. The physiologic and clinical features of asthma derive from interaction among the resident and infiltrating inflammatory cells of the airway surface epithelium, inflammatory mediators and cytokines. The cells thought to play important parts in the inflammatory response are mast cells, eosinophils, lymphocytes and airway epithelial cells. The roles of neutrophils. Macrophages and other cellular constituents of the airways are less well defined.

Pathphysiology:

The pathophysiologic hallmark of asthma is a reduction in airway diameter brought about of contraction of smooth muscle, vascular congestion, edema of the bronchial wall & thick, tenacious

secretions. The net result is an increase in airway resistance, a decrease in forced expiratory volumes and flow rates, hyperinflation of the lungs & thorax increased work of breathing, alterations in respiratory muscle function, changes in elastic recoil, abnormal distribution of both ventilation pulmonary blood flow & altered blood gas concentrations when patient presents for therapy the forced expiratory volume (FEV_1) or peak expiratory flow rate (PEFR) is typically & 40% of predicted.

Hypoxia is a universal finding during acute exacerbations but frank ventilatory failure is relatively uncommon. Most individuals with asthma have hypocapnia and a respiratory alkalosis. The presence of metabolic acidosis in the setting of acute asthma signifies severe obstruction. Cyanosis is a very late sign. Therefore, in patients with suspected alveolar hypoventilation, arterial blood gas tension must be measured.

Risk factors for asthma:

1. Genetic susceptibility:

Asthma and atopy show clear indications of genetic susceptibility, the frequency of disease in family members is greater than in the population as a whole and is greater in identical than non – identical twins.

2. Allergen exposure:

Natural allergen exposure induces asthma and airway hyper-responsiveness. Allergens & other substances liable to provoke attacks of asthma are pollens, mite's in house dust, animal dander, etc.

3. Environment and Air pollution:

Environmental causes of asthma are usually related to climatic conditions that promote the concentration of atmospheric pollution and antigens the air pollutants known to have this effect are ozone, nitrogendioxide and sulfur-dioxide. In these circumstances, although the general population can develop respiratory symptoms, patients with asthma and other respiratory diseases tend to be more severely affected.

4. Occupational factors:

Occupation related asthma is a significant health problem, and acute and chronic airway obstruction have been reported to follow exposure to a large number of compounds used in many types of industrial processes.

In general, the agents can be classified into high molecular weight compounds, which are believed to induce asthma through immunologic mechanisms and low molecular weight agents can release bronchoconstrictor substances

COMMON OCCUPATIONAL CAUSES OF ASTHMA

High Molecular weight compounds	Low Molecular weight compounds
1. Wood and vegetable dusts Eg. Those of Oak, grain flour, castor bean, green coffee bean, gum acacia & tragacanth, etc.	1. Metal salts eg., platinum chrome, nickel, vanadium, etc.
2. Pharmaceutical agents – e.g. antibiotics, piperazine, etc.	2. Industrial chemicals & plastics Eg. Toluene diisocyanate, ethylene diamine
3. Biologic enzymes Eg., Laundry detergents, pancreatic enzymes, Bacillus subtilis, etc.	3. Formalin- Hospital workers
4. Animal & insect dusts, serum and secretions laboratory animals, prawns, oyster crab, bees, etc.	

5. Infections:

Respiratory infections are the most common of the stimuli that evoke acute exacebations of asthma. Viral infections can

actively and chronically destabilize asthma, and they are perhaps the only stimuli that can produce constant symptoms for weeks. The mechanism by which viruses induce exacerbations of asthma may be related to the production of T-cell derived cytokines that potentiate the infiltration of inflammatory cells into already susceptible airways. 85% of asthma attacks in children and 44% in adults were induced by upper respiratory tract infections, of which the great majorities were caused by rhinoviruses.

6. Exercise:

Exercise is a very common precipitant of acute episodes of asthma. Typically, the attacks follow exertion and do not occur during it. This stimulus differs from other naturally occurring provocations, such as antigens, viral infections and air pollutants in that it does not evoke any long term sequelae.

7. Emotional stress:

Psychological factors can worsen or ameliorate asthma. Changes in airway caliber seem to be mediated through modification of vagal efferent activity. The extent to which psychological factors participate varies from patient to patient and in the same patient from episode to episode.

Patients with asthma can be categorized by whether their symptoms are intermittent or persistent, and by the severity of their symptoms & underlying airway narrowing tests. Even those with

mild asthma – intermittent or persistent can develop severe asthma.

1. Mild intermittent asthma – symptoms occur less than weekly with normal or near normal lung function between episodes.
2. Mild persistent asthma – symptoms occur more than weekly but less than daily with normal or near normal lung function between episodes.
3. Moderate persistent asthma – symptoms occur daily with mild to moderate variable airflow limitation.
4. Severe persistent asthma – symptoms occur daily and interfere with normal activities. There is frequent noctumal waking and moderate to severe variable airflow limitation.
5. Severe asthma – severe distressing symptoms prevent sleep. Severe airflow limitation responds poorly to inhaled bronchodilators and can be life threatening

Clinical Features:

The symptoms of asthma consist of a traid of dyspnoea, cough and wheezing. In its most typical form all three symptoms co exist. At the onset of an attack, patients experience a sense of constriction in the chest, often with a non-productive cough. Respiration becomes audibly harsh, wheezing in both phases of respiration becomes prominent, expiration becomes prolonged & patients frequently have tachypnoea, tachycardia and mild systolic hypertension. If the attack is severe or prolonged, there may be a loss of adventitial breath sounds, and wheezing becomes very high pitched. Further more the accessory muscles become visibly active

and a paradoxical pulse often develops. These two signs are extremely valuable in indicating the severity of the obstruction.

The end of an episode is frequently marked by a cough that produces thick, stringy mucus, which often takes the form of casts of distal airways (curschmann's spirals) and, when examined miroscopically, often shows eosinophils and charcot-leyden crystals.

Lung function tests:

Measurements of respiratory function may provide valuable information. First, in conjunction with the clinical assessment and to help establish a diagnosis. Secondly, they will help indicate the severity of the condition. Thirdly, serial measurements over time will show changes indicating disease progression or, alternatively, a favorable response to treatment.

Forced expired volume in the first second:

The forced expired volume is defined as the volume expired in the first one second during forced vital capacity exhalation. This is measured from the analysis of the forced expiratory spirogram. In normal subjects, FEV1 is more than 80% of FVC values of FEV1 are reduced in both central and peripheral airways obstruction. In patients with reduced lung volumes, FEV1 expressed as % FVC may be supranormal (>90%)

Peak expiratory flow rate (PEFR):

PEFR may be simply measured using equipment such as the Wright peak expiratory flow meter. The machines are cheap & portable and give the reading of the peak flow rate on a dial or a linear scale. This is defined as the maximum expiratory flow rate sustained for atleast 20 milliseconds during the forced expiratory manouvre.

Variability in PEFR of greater than 15-20% in a single day or from day to day is very suggestive of asthma. Most normal subjects demonstrate less than 10% variation in PEFR over a 24 h period. Similarly PEFR may be used as an index of response to treatment in asthma. Finally, PEFR is the most convenient measurement for use in the diagnosis of exercise induced asthma, where a fall in PEFR of greater than 15% following exercise is considered diagnostic.

Normal values are 400-600 L / min in young mean and 300 – 400 L / min in young women. Serial recordings of PEFR are useful in distinguishing patients with chronic asthma from those with fixed or irreversible airflow obstruction associated with COPD.

MATERIALS AND METHODS

PROTOCOL

AN OPEN CLINICAL TRIAL OF ILAVANGATHI CHOORNAM FOR THE TREATMENT OF IYA ERAIPPU (BRONCHIAL ASTHMA)

1. BACKGROUND

Eraippu noi has been classified into five types in Siddha system. *Iya Eraippu* is one among them. It correlates with the classical signs and symptoms of Bronchial asthma.

In manuscripts, the etiology of the disease *Iya Eraippu* or *Mandara Eraippu* is stated as

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Drug Ilavangathi choorn*am* mentioned in Siddha literature S*igicha Rathna Deepam* under C*hoorna Vilambam* is indicated specifically for Eraippu Noi. The efficacy of this drug is not documented. Therefore, we propose to carry out an open clinical trial to estimate the efficacy of the drug.

1. AIMS

a) Primary aim

To estimate the efficacy of *Ilavangathi choornam* in the treatment of *Iya Eraippu.*

b) Secondary aim

To find out the side- effects of the drug, if any.

3. POPULATION & SAMPLE

The population consists of patients with *Iya Eraippu* (Peak Expiratory Flow Rate > 200 L / minute) satisfying the inclusion & exclusion criteria mentioned below. The sample consists of *Iya Eraippu* patients attending the O.P.D of the Ayodthidoss Pandithar Hospital of the National Institute of Siddha, Tambaram Sanatorium, and Chennai-47.

4. SAMPLE SIZE

The trial size will be 50 patients.

5. INCLUSION CRITERIA

1. Age 12 to 80 yrs.

2. Willing to be admitted in the Hospital for 30 days or willing to attend the O.P.D. once in 10 days.

6. EXCLUSION CRITERIA

1. Smoking
2. Alcohol consumption
3. History of epilepsy or ischaemic heart disease
4. Pregnancy
5. Lactation.

7. WITHDRAWAL CRITERIA

1. Acute severe asthma
2. Occurrence of any serious illness

8. TRIAL DRUG AND DURATION

Drug – *Ilavangathi choornam*- 4 g t.d.s. with honey, after food.

Duration of trial treatment – 30 days

10. TESTS AND ASSESSMENTS

a. CLINICAL ASSESSMENTS

1. Dyspnoea
2. Cough
3. Wheezing
4. Sense of constriction of chest
5. Type of breathing
6. Accessory muscles of respiration
7. Hoarseness
8. Inability to sleep
9. Sputum production
10. Trigger factors of asthmatic attack

11. Vocal resonance
12. Vocal fremitus

SIDDHA ASPECT- ENVAGAI THERVU

1. Naa
2. Niram
3. Mozhi
4. Vizhi
5. Malam
6. Moothiram-Neerkuri & Neikuri
7. Meikuri (Sparisam)
8. Naadi (Kaikuri)

a) INVESTIGATIONS

1. Blood test- TC, DC, ESR, Hb, RBC, Sugar (F/PP)
2. Urine test – Albumin, Sugar & Deposits
3. Motion test-Ova, Cyst.

11. CONDUCT

Iya Eraippu patients satisfying inclusion and exclusion criteria will be admitted to the trial. Informed consent will be obtained from the patients.

Routine investigations will be carried out before and after the trial treatment. For in-patients the trial drug will be administered

by the doctor. For out - patients the trial drug will be issued for 10 days at a time. They will be advised to visit the O.P.D once in 10 days. At each visit they will be clinically assessed.Also, they will be advised to bring back unconsumed drugs and return them during their subsequent visit.

12. FORMS

Form I - Selection Proforma – It is used before admission of the patients to the trial.

Form II -Assessment Proforma- It is used once in 10 days during treatment.

13. ANALYSIS

The change in the PEFR before and after treatment will be analyzed using Paired t-test.

For the changes observed in the proportion of patients with signs / symptoms will be analyzed using Paired X^2 test.

RESULTS & OBSERVATION

Observations were made during the course of dissertation work with regard to the following features.

1. Age & sex distribution
2. Socio – economic status
3. Occupational reference
4. Personal habit & diet
5. Past history & family history
6. Distribution of thinai
7. Kalam
8. Paruvakalam
9. Reference to mukutram
10. Envagai thervu
11. Neerkuri & Neikuri
12. Recording PEFR (L/min), ESR (mm/hr), Eosinophil count
13. Signs & symptoms during admission into the trial

Table No.1

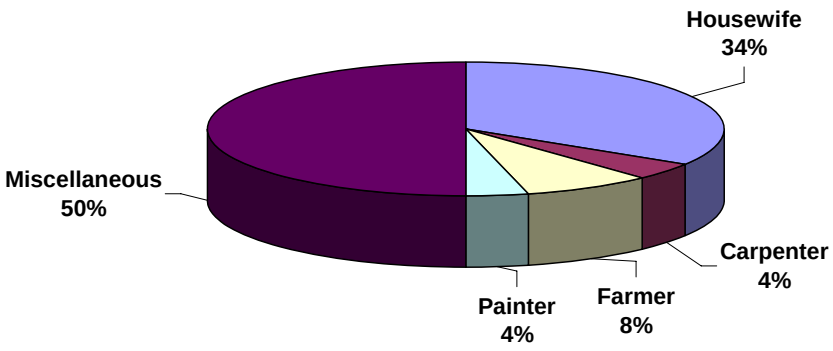
Age – Sex Distribution of 50 Iya eraippu patients, NIS, Chennai – 47, 2007

S.No.	Age (yr)	Sex		Total
		Male	Female	
1.	12-20	2	3	5
2.	21-30	6	8	14
3.	31-40	5	5	10
4.	41-50	6	5	11
5	51-60	4	2	6
6.	61-70	2	1	3
7.	71-80	1	0	1
Total		**26**	**24**	**50**

1

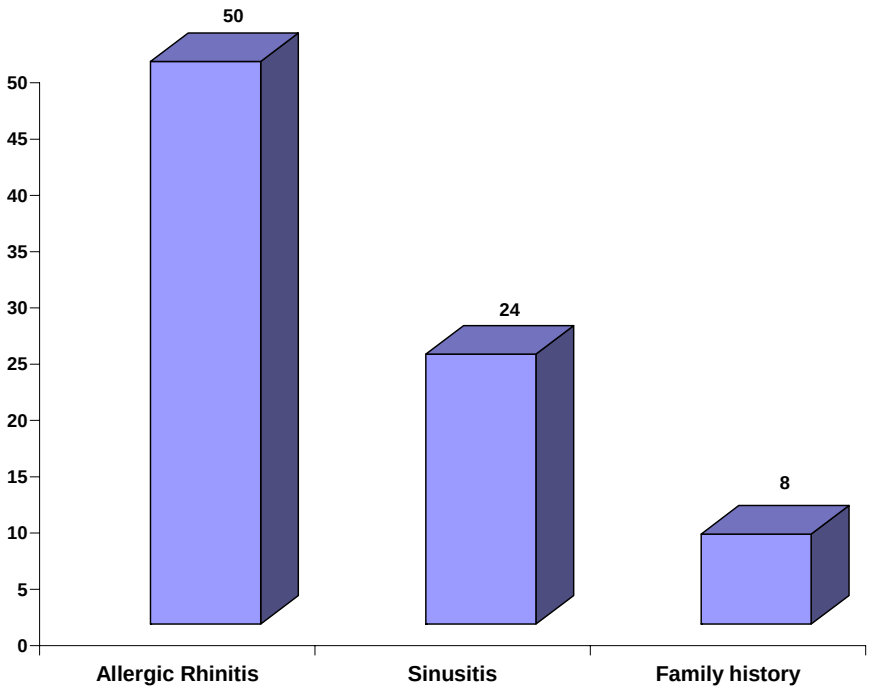
OCCUPATIONAL REFERENCE

PIE DIAGRAM NO. 1



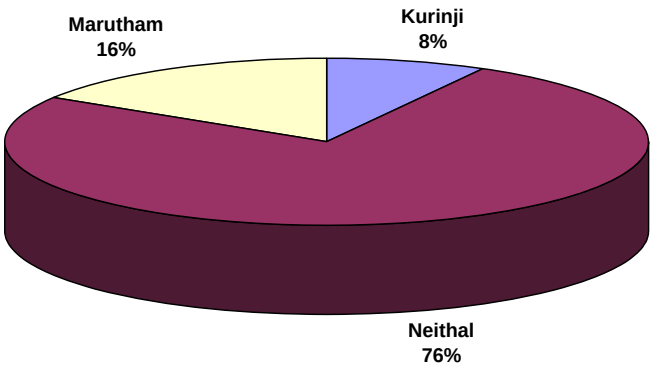
PAST HISTORY & FAMILY HISTORY

BAR DIAGRAM NO.1



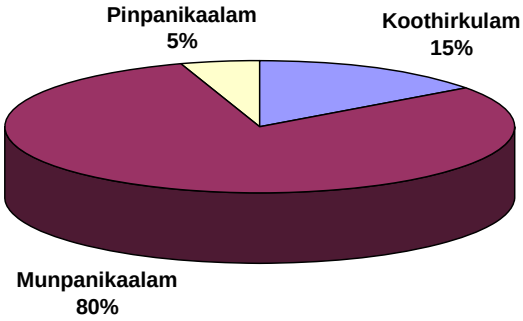
DISTRIBUTION OF THINAI

PIE DIAGRAM NO.2



PARUVAKALAM

PIE DIAGRAM NO.3



MUKUTRAM

PIE DIAGRAM NO.4

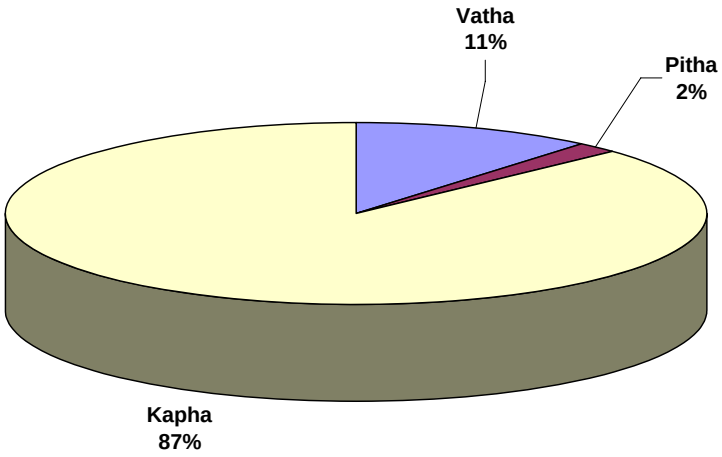


TABLE NO.2

OBSERVATIONS IN 50 IYA ERAIPPU PATIENTS, NIS, CHENNAI – 47, 2007.

S. No.	Date	O.P. / I.P. No.	Name	Age / sex	family h/o	H / o sinisutis /allergic	PEFR Initial	(L/min) final
1.	20.11.2006	S8703	Rajeshkannan	14/M	-	-	270	360
2.	20.11.2006	S8781	Mankali	49/M	-	-	440	450
3.	20.11.2006	S8839	Mangai	30/F	+	+	280	400
4.	22.11.2006	S9736	Durairaj	50/M	-	+	210	150
5.	22.11.2006	S9671	Ramasamy	75/M	-	+	200	150
6.	23.11.2006	S9994	Ragamathulla	32/M	-	-	400	390
7.	23.11.2006	T114	Nesam	70/F	-	-	210	200
8.	24.11.2006	T402	Mahalingam	59/M	+	+	150	180
9.	27.11.2006	T1611	Anandakumar	20/M	+	-	330	440
10.	28.11.2006	T2263	Aruldoss	31/M	+	+	400	480
11.	28.11.2006	T2276	Ashok	28/M	-	+	300	350
12.	29.11.2006	T2759	Prakash	25/M	-	-	320	350
13.	29.11.2006	T2732	Poongodi	32/M	-	+	320	320
14.	30.11.2006	T3084	Ranganayaki	57/M	-	+	320	350
15.	02.12.2006	T3920	Paramasivam	42/M	-	+	210	170
16.	03.12.2006	T4035	Balu	60/M	-	-	210	330
17.	04.12.2006	T4409	Abarna	26/F	-	+	200	240
18.	07.12.2006	T5941	Karthick	24/M	-	-	450	480
19.	07.12.2006	T5864	Chellam	42/F	+	+	220	260
20.	08.12.2006	T6183	Jayashree	40/F	-	+	250	370
21.	12.12.2006	T8021	Hariharan	21/M	-	-	220	370
22.	13.12.2006	T8443	Pushpa	40/F	-	-	300	360
23.	15.12.2006	T9189	Chandika	43/F	+	+	250	260
24.	20.12.2006	U1210	Bathuru	49/F	+	+	270	300
25.	21.12.2006	U1683	Murali	32/M	-	-	290	380
26.	21.12.2006	U1716	Karthikeyan	29/M	+	-	340	360
27.	22.12.2006	U2075	Shanthi	43/F	-	-	300	360
28.	23.12.2006	U2215	Dillibabu	34/M	-	-	400	470
29.	25.12.2006	U3195	Anandhan	28/M	+	+	370	420
30.	26.12.2006	U3373	Selvam	35/M	+	+	260	400

S. No.	Date	O.P. / I.P. No.	Name	Age / sex	family h/o	H / o sinisutis /allergic	PEFR Initial	(L/min) final
31.	28.12.2006	U4923	Selvi	32/F	-	-	250	250
32.	29.12.2006	U5284	Cathirin	40/F	-	+	380	390
33.	29.12.2006	U5154	Sathyaseelan	19/M	-	-	420	440
34.	29.12.2006	U5066	Raja	42/M	-	-	220	260
35.	30.12.2006	U5447	Parveen	25/F	+	-	250	330
36.	02.01.2007	U6434	Sudha	54/F	-	+	250	350
37.	03.01.2007	U6843	Suseela	47/F	+	+	280	150
38.	03.012007	U6743	Janakiraman	60/M	-	-	280	260
39.	04.01.2007	U7226	Alamelu	30/F	+	+	400	410
40.	04.01.2007	U7196	Unnamalai	29/F	-	-	250	310
41.	04.01.2007	542	Abdul Rehman	55/M	+	-	210	230
42.	06.01.2007	U8035	Aishwarya	18/F	+	-	300	330
43.	07.01.2007	U8328	Pushpalatha	21/F	-	-	200	420
44.	07.01.2007	U8147	Parveen	26/F	-	+	290	290
45.	07.01.2007	U8140	Muthukaruppan	50/M	+	+	210	100
46.	10.01.2007	U9464	Selvam	65/M	-	-	320	360
47.	11.01.2007	U040	Maniraj	68/M	-	-	200	230
48.	18.01.2007	U1425	Raghunathan	47/M	-	-	250	310
49.	19.01.2007	U1745	Shebagavalli	19/F	+	+	320	360
50.	27.01.2007	U4859	Gomathy	22/F	-	-	250	280

TABLE NO.3

RESULTS OF OBJECTIVE PARAMETERS BEFORE AND AFTER TREATMENT OF 50 IYA ERAIPPU TREATMENT, NIS, CHENNAI – 47, 2007.

Sl. No.	Eosinophil count (%)		ESR (mm / hr)	
	Before	After	Before	After
1.	8	6	12	12
2.	2	3	12	8
3.	2	2	20	12
4.	4	3	20	12
5.	5	4	4	4
6.	2	2	7	4
7.	2	3	8	7
8.	4	4	24	20
9.	6	5	22	22
10.	6	5	8	12
11.	6	5	16	8
12.	8	10	16	6
13.	4	5	8	8
14.	4	2	12	22
15.	2	2	8	10
16.	8	10	8	10
17.	10	10	12	16
18.	2	2	12	16
19.	2	8	4	6
20.	6	6	16	12
21	4	3	6	5
22.	4	3	24	12
23.	6	4	4	4
24.	8	4	14	8

Sl. No.	Eosinophil count (%)		ESR (mm / hr)	
	Before	After	Before	After
25	4	3	12	10
26.	4	3	14	6
27.	4	3	58	24
28	4	4	22	14
29	4	4	28	20
30.	6	3	14	8
31.	12	6	12	16
32.	8	2	28	22
33.	6	4	24	18
34.	4	4	22	25
35.	6	4	12	8
36.	4	4	16	12
37.	4	4	12	10
38	6	4	8	6
39.	2	2	12	6
40.	10	6	22	16
41.	10	5	18	8
42.	2	4	10	14
43.	4	3	12	10
44.	4	2	12	14
45	4	3	12	8
46.	10	6	8	12
47.	8	6	20	16
48.	3	2	12	8
49.	4	4	16	12
50.	2	2	12	10

THE T – TEST ON PAIRED OBSERVATIONS FOR OBJECTIVE PARAMETERS

To make comparisons on the basis of paired observations on an individual e.g., before & after treatment, t - test is done. In such situations, the difference between the two observations must, on average, be zero, under the Null hypothesis; the t-test described above has therefore frequent practical application. Here, using t-test the values of PEFR (L / min), ESR (mm / 1 hr), and Eosimophil count (%) are calculated for testing the significance.

We could see the following data in Table No 4.

The mean value of PEFR, before treatment in 50 Iya eraippu patients is 285.4 L/ min after treatment the mean value for the same is 328.4 L / min the difference in the means is 43. L / min. To test the significance of the difference paired t-test is done. The calculated paired‘t’ – test value is 4.559 L / min. In consequence, the quantity above is compared with P–value of 5% significance level. Hence, the null hypothesis is rejected, since the calculated value is greater then $P < 0.05$ (2.010) significance level. Therefore, the trial drug shows considerable improvement in patients which is statistically significant.

The mean value of ESR, before & after treatment in 50 Iya eraippu patients is 14.9 (mm / hr) & 11.7 (mm / hr) respectively. The difference in the means is 3.2 (mm / hr). To test the significance of the difference paired t-test is done. The calculated‘t’ value is 3.810 mm / hr. This quantity is compared with P value of 5% significance level. Since, the calculated value is greater than

the P < 0.05 (2.010) significance level, Null hypothesis is rejected. Hence, the trial drug is considered statistically significant.

The mean value of Eosmophil count, before and after treatment in 50 Iya eraippu patients included in clinical trial is 5.06% and 4.14% respectively. The difference in the means is 0.92%. The significance of the difference is calculated by paired t-test. The calculated t-value is 3.159% compared with P < 0.05 (2.010). Hence, the Null hypothesis is rejected. The trial drug is considered to be statistically significant.

TABLE NO. 4

RESULTS OF STATISTICAL ANALYSIS OF SOME OBJECTIVE PARAMETERS BEFORE AND AFTER TREATMENT OF 50 IYA ERAIPPU PATIENTS, NIS, CHENNAI – 47, 2007

S.No.	Parameter	Mean		Difference	Paired 't' test value	P Value	Significance of the difference
		Before treatment	After Treatment				
1.	PEFR (L / min)	285.4	328.4	43	4.559	< 0.05 2.010	Statistically significant
2.	ESR – 1 Hr (mm)	14.9	11.7	3.2	3.810	<0.05 2.010	Statistically significant
3.	Eosinophil (%)	5.06	4.14	0.92	3.159	<0.05 2.010	Statistically significant

TABLE NO. 5

RESULTS OF SUBJECTIVE PARAMETERS BEFORE AND AFTER TREATMENT OF 50 IYA ERAIPPU PATIENTS, NIS, CHENNAI – 47

S.No.	Wheezing		Constriction of chest		Dyspnoea		Cough	
	B	A	B	A	B	A	B	A
1.	+	–	–	–	+	–	+	–
2	+	–	+	–	+	+	+	+
3.	+	–	+	–	+	+	+	+
4.	+	–	+	–	+	–	+	–
5.	+	+	+	+	+	+	–	–
6.	+	+	+	–	+	+	+	+
7.	+	–	+	+	+	–	+	–
8.	+	+	+	–	+	–	+	+
9.	+	–	–	–	+	+	+	+
10.	+	–	–	–	+	–	+	+
11.	+	–	+	–	+	–	+	–
12.	+	+	–	–	+	+	+	+
13.	+	–	+	–	+	+	+	+
14.	+	–	+	–	+	+	+	–
15.	+	–	+	–	+	+	+	–
16.	+	+	+	+	+	+	+	+
17.	+	+	–	–	+	+	+	+
18.	+	–	+	–	+	–	+	+
19.	+	–	+	+	+	+	+	–
20.	+	–	+	–	+	–	+	–
21	+	+	+	+	+	+	+	+
22.	+	–	+	–	+	–	+	–
23.	+	–	+	–	+	–	+	–
24.	–	–	+	–	+	–	+	–
25.	+	–	–	–	+	–	+	+

S.No.	Wheezing		Constriction of chest		Dyspnoea		Cough	
26.	+	+	–	–	+	+	+	+
27.	+	+	+	+	+	+	+	+
28.	+	–	–	–	+	+	+	–
29.	+	–	+	–	+	+	+	–
30	+	–	–	–	+	–	+	+
31.	+	–	+	–	+	+	+	+
32.	+	–	–	–	+	–	+	+
33.	+	–	+	–	+	–	+	+
34.	+	+	–	–	+	+	+	+
35.	+	–	+	–	+	–	+	+
36.	+	–	+	+	+	–	+	–
37.	+	–	+	–	+	–	+	–
38.	+	–	+	+	+	+	+	+
39.	+	–	–	–	+	–	+	–
40.	+	+	+	+	+	–	+	–
41.	+	–	+	–	+	–	+	–
42.	+	+	+	–	+	+	+	–
43.	+	–	–	–	+	–	+	–
44.	+	+	+	+	+	+	+	+
45.	+	–	+	+	+	+	+	+
46.	+	–	+	+	+	+	+	+
47.	+	–	+	–	+	+	+	+
48.	+	+	+	+	+	+	+	+
49.	+	+	–	–	+	–	+	–
50.	+	+	+	–	+	+	+	+

Note: B - Before treatment

A - After treatment

THE CHI – SQUARE TEST FOR SUBJECTIVE PARAMETERS

Data collected in the field of medicine is often qualitative here for e.g., the presence or absence of a symptom like cough, wheezing, dyspnoea and constriction of chest is taken. Comparisons between 2 or more proportions, and the test of significance employed for such purposes is called the chi-square test.

The chi -square test is designed to examine whether a series of observed numbers in various categories of the data are consistent with the number expected in those categories on some specific hypothesis called Null hypothesis. By comparing the computed value with the tabulated value, the probability that the difference may have arisen from chance is obtained, this is called chi-square test. This test is very useful test of significance which is used here for symptoms like cough, wheezing, dyspnoca & constriction of chest in patients of Bronchial asthma.

Observed data is represented in Table No. 6.

In all, among 50 Iya eraippu patients before treatment cough is present as 86% & after treatment as 14%. The difference in treatment is 72% for the chi-square test, x^2 value is calculated as 15.05. On referring to tabulated values of the chi – square distribution with 1 degree, freedom, it is found that the probability corresponding to a chi – square value of 15.05 is greater than $P < 0.05$ (3.84) level. Hence, reject the null hypothesis & say the cure is statistically significant.

In the 50 Iya eraippu patients underwent clinical trial with drug Ilavangathi choornam, wheezing was present 86% in before treatment and 14% in after treatment. The difference in treatment is 72%. x^2 value is calculated as 28.03 On referring the tabulated values of the chi-square distribution with 1 degrees of freedom it is found value of 28.03 is more than $P < 0.05$ (3.84) level. Hence, null hypothesis is rejected and the cure is statistically significant.

The patient with dyspnoea before treatment is 76% and after treatment is 24%. The difference in the treatment is 52%. x^2 value is calculated as 12.89. On referring to tabulated values of the chi – square distribution with 1 degrees of freedom it is found that the probability corresponding to x^2 – value of 12.89 is greater than $P < 0.05$ (3.84) level. Hence, Null hypothesis is rejected & the trial drug is proved to be efficacious.

In all 50 Iya eraippu patients of asthma, the patient suffered with constriction of chest is 60% before treatment and 40% after the treatment. The difference is 20%. The x^2 value is calculated, on referring to tabulated values of chi-square distribution with 1 degrees of freedom. It is found that the probability corresponding to x^2 value of 15.058 is greater than $P < 0.05$ (3.84) Hence, Null hypothesis is rejected & the trial drug shows statistically significant efficacy.

TABLE NO.6

RESULTS OF STATISTICAL ANALYSIS OF SOME SUBJECTIVE PARAMETERS BEFORE AND AFTER TREATMENT OF 50 IYA ERAIPPU PATIENTS, NIS, CHENNAI – 47, 2007

S.No.	Parameter	Percentage present		Difference	Paired x^2	P value	Significance of the difference
		Before treatment	After treatment				
1.	Cough	86%	14%	72%	15.05	<0.05 (1d.f) 3.84	Statistically significant
2.	Wheezing	86%	14%	72%	28.03	<0.05 1 (d.f) 3.84	Statistically Sgnificant
3.	Dyspnoea	76%	24%	52%	12.89	<0.05 1 (d.f) 3.84	Statistically significant
4.	Constriction of chest	60%	40%	20%	15.058	<0.05 1 (d.f) 3.84	Statistically significant

DISCUSSION

The present study brings on record, the work done on Iya Eraippu by clinical trial of Ilavangathi choornam with well defined protocol.

The present work was carried out on Iya Eraippu representing various views of its aetiology, classification, prodormal signs, signs & symptoms, Noi Naadal Noi mudal naadal, Naadinadai & also Dietary, Pranyamam & Yogasana prescriptions.

The Iya Eraippu patients are studied with regard to their past history of Ovammai & Peenisam, (allergic rhinitis, sinusitis & family history of asthma). This is represented by bar diagram (1)

In the Iya Eraippu patients admitted to clinical trial, age & sex distribution presented by Table No.1 & occupational history, distribution of thinai, incidence in paruvavakalam, derangement of mukuttram are studied and represented by pie diagram (1,2,3,4) respectively.

The observation on objective parameters like peak expiratory flow rate (PEFR) & laboratory investigation particularly, Eosinophil count and ESR (mm / hr) are calculated by statistical method and tested for significance. This is presented in Table No.4.

The observation on subjective parameters such as cough, wheezing, dyspnoea and constriction of chest are also analysed for statistical significance and presented in Table No.6.

The preliminary biochemical analysis were carried out and presented.

The preliminary photochemical analysis were carried out with dichloromethane solvent and presented.

The acute toxicity study of drug Ilavangathi choornam is conducted on albino rats & recorded.

The trial drug is subjected to study on guinea pig for pharmacological activity – anti spasmodic effect & kymograph is recorded.

SUMMARY AND CONCLUSION

The open clinical trial of dry Ilavangathi choornam is conducted in 50 patients of Iya Eraippu at Ayothidoss Pandithar hospital of the National Institute of Siddha, Tambaram Sanatorium, Chennai - 47.

Among the fifty patients, the 50% of patients were having history of allergic rhinitis, 24% suffer from sinusitis & 4% with family history.

The patients were belonging to Neithal thinai are the most as to 76%.

The incidence of disease, Iya Eraippu looking with respect to paruvakalam showed about 80% suffer mostly during Munp anikaalam (December - Feburary).

The derangement of Kapha in Iya Eraippu patients is about 87% vatha, 11% & pitha about 2% only.

In the 90% of the Iya eraippu patients neikuri is `muthu' i.e. kabha neer.

The biochemical analysis of trial drug showed the presence of chloride.

The phytochemical analysis of the trial drug revealed the presence of carbohydrates & glycosides, phenolic compounds, tannins, phytosterols and essential oil.

The pharmacological analysis of trial drug in guinea pig showed potent anti-spasmodic activity.

The trial drug is estimated non-toxic at a high dose of 2000 mg/kg of body weight in albino rats.

This compound trial drug is formulated in such a way as to alleviate any digestive disturbances and also to prevent from any ill-effects due to excessive kaarpu suvai.

The trial drug had showed no adverse effects when given to the patient during the trial period.

The trial drug has been able to relieve cough and enhance expectoration, thereby relieving dyspnoea in Iya eraippu patients.

The objective parameters-PEFR (L/min), ESR (mm/hr), eosinophil count (%) all measured are proven statistically $p<0.05$ significant.

The subjective parameters-cough, wheezing, dyspnoea, and constriction of chest showed significant improvement after the trial,proven statistically $p<0.05$.

PREPARATION OF TRIAL DRUG – ILAVANGATHI CHOORNAM

The drug Ilavangathi Choornam is choosen for trial from the Siddha literature Sigicharathna deepam indicated for Iraippu noi.

The constituents of trial drug include-

1. இலவங்கம்
2. இலவங்கப்பட்டை
3. சதகுப்பை
4. கருஞ்சீரகம்
5. ஏலம்
6. தனியா
7. சீரகம்
8. தாளிசபத்திரி
9. சிறுதேக்கு
10. திப்பிலி மூலம்
11. செவ்வியம்
12. சடாமாஞ்சில்
13. ஜாதிக்காய்
14. ஜாதிபத்திரி
15. ஓமம்
16. கோஷ்டம்
17. குரோசாணி ஓமம்
18. வாய்விளங்கம்
19. மாசிக்காய்
20. அக்கரகாரம்

21. சமுத்திரப்பழம்
22. சிறுநாகப்பூ
23. சிற்றரத்தை
24. சுக்கு
25. மிளகு
26. திப்பிலி
27. பொன்முசுட்டை வேர்
28. விலாமிச்சு வேர்
29. மகரப்பூ

Each of the above constituents are cleansed & purified, taken as same quantity then made into fine powder. The dosage is given as 4 gm three times a day (½ தோலா இருவேளை)

As per T.V. Sambasivapillai dictionary Vol.5 Page No.634 & 635 மகரப்பூ is known as வெந்தயம்.

Also, by பச்சிலை - பரிபாஷை அகராதி Page 104

& மூலிகை மருத்துவ அகராதி Page 197 மகரப்பூ is வெந்தயம்.

Properties of trial drug:

The trial drug Ilavangathi choornam consists of 29 drugs. Most of its constitutents are having pungent taste (Kaarpu suvai). Least among them belongs to bitter and astringent taste (Kaippu & thuvarppu suvai).

We all know, that siddha system of medicine is based on five elements (ஐம்பூதம்)

A maruthuva thanipadal quotes the formation of six tastes from five elements.

"மண்ணுடனே புனல் தீக்கால் முறையாகச் சேர்ந்திட்டால் வருமா மினிப்புத்
திண்ணமிலம் துவர்ப்பிரசம் சதாகதியோ டார்தீவின் திடமா முறைப்பும்
எண்ணறிய கசப்பு முண்டாம் தண்ணீரில் தணலினைப்பால் எழுமா முவர்ப்பு
உண்ணரிய அறுசுவையின் சிறப்பிதெனுங் குருசித்தர் உரைத்த மறையே"

மண்	+	நீர்	-	இனிப்பு(Sweet)
மண்	+	தீ	-	புளிப்பு(Sour)
மண்	+	காற்று	-	துவர்ப்பு(Astringent)
நீர்	+	தீ	-	உவர்ப்பு(Salt)
காற்று	+	தீ	-	கார்ப்பு(Pungent)
காற்று	+	வெளி	-	கைப்பு(Bitter)

Maruthuva thanipaadal quotes the action & character of Kaarpu, Kaippu & Thuvarppu suvai as below.

கார்ப்பு சுவையின் செய்கை :

"நற்பசி யூக்கி... கார்ப்பைச் சீர்
தூக்கியயில் வோர்க்குச் சொல்"

கார்ப்பு - குணம் :

"தொண்டையில் லுண்டாம் மிண்டு செய் பிணிகள்
அழித்திடும் நாடி நாள் அடைப்பினைக்கழற்றியே.."

- The pungent taste stimulates appetite.
- Cures the diseases of throat.
- Destroys the vitiated kapha .

துவர்ப்பு சுவையின் இயல்பு :

"கட்டுவதுசற்றுக் கரகரப் பாக்குவது
திட்டமாய் தோற்பதனஞ் செய்வது - மட்டிற்
கொழுப்புநீர் மல்குங் கொழுப்பும் வரட்டல்
தொழிலாந் துவர்ப்புச் சுவைக்கு"

Astringent controls the excessive discharge of faeces, urine & bleeding.

செய்கை:

"பொல்லா வையம் மாற்றும்.. குளிர்ந்த துவர்ப்பின் வேலை"
கைப்பின் பண்பும் செய்கையும்

It the astringent changes the decreased appetite due to various reasons.
It changes the vitiated kapha.
It controls the hyper secretions of glands in the body.

"வேறு காரணம் விளைத்த வூண் வெறுப்
போட்டு மியல்பா யேற்க விரும்பாச்
சுவையாம் பித்தமைய விகற்பங்...
வாய்நீருறல் அழற்சியும் தணிக்கும்
மெய்நீர்க் கசிவையுந் தடியையுந் தடியும்
ஊண்சலம் மலஞ்சலம் நிணசலம் என்பினுள்
வறட்டும்...."

The astringent taste changes the hatred towards food.
It converts the vitiated pitha & Kapha.
It controls the hypersecretions of glands in the body.

Considering the actions & characters of Kaarpu, Kaippu & Thuvarpu suvai, the drug is formulated in such a way that the adverse effect of excessive kaarpu suvai is counteracted by Kaippu & thuvarpu suvai. Also, the kaarpu & thuvarpu suvai corrects the deranged deepakini in the body & produces good appetite. Both the kaarpu & thuvarpu suvai has the ability to control excessive secretion, as here, it will be appropriate to say the sputum production & expectorant. Hence Kaarpu suvai, by its inherent property antagonizes kapha by having fire as its component.

Generally kapha disease patient's complaints of reduced appetite or anorexia. In Iya eraippu patients their condition gets worse if they suffer from dyspnoea particularly after food due to improper digestion.Siddhars had given us plethora of drugs, mostly combination of herbs as compound drugs.The drug Ilavangathi choornam is also one among those formulation.Many drugs being the constituents of this choornam has the property of carminative,

stomachic, stimulant which suits the kapha noi patients gastric symptoms.They are-

Ilavangam,Ilavangapattai,Sathaguppai,Karunjeerakam, Elam, Dhaniya, Seeragam, Thalisapathri, Thippilimoolam, Jathikkai, Jathipathri, Omam, Koshtam, Vayvilangam, Sirunagapoo, Arathai, Chukku, Thippili,Vendayam. Ilavangam, Sathaguppai, Sadamanjil, Omam, Kurosanai Omam are having anti-spasmodic activity. Thalisapathri, Sadamanjil, Koshtam, Samudra pazham, Arathai, Milagu, Thippili, Ponmusuttai ver all have the expectorant property.

1. கிராம்பு / இலவங்கம் - Cinnamomum zeylanicum

சுவை : காரமும் விறுவிறுப்புமுள்ளது.

தன்மை : வெப்பம்

பிரிவு : கார்ப்பு

Action : Anti-spasmodic, Carminative, Stomachic.

"பித்த மயக்கம் பேதியொடு வாந்தியும்போம்
சுத்தவிரத் தக்கடுப்புந் தோன்றுமோ - மெத்த
இலவங்கங் கொண்டவருக் கேற்சுகமாகும்.
மலமங்கே கட்டுமென வாழ்த்து".

அ.கு

"சுக்கிலநட் டங்கர்ண சூர்வியங்க லாஞ்னந்தாட்
சிக்கல் விடாச் **சர்வா சியப்பிணியு** - மக்கிக்குட்
டங்கப் பூவோடு தரிபடருந் தோன்றிலில்
வங்கப்பூ வோடுரைத்து வா"

2. இலவங்கப்படை - Cinnamomum verum

சுவை : காரமும் இனிப்புமுடையது

தன்மை : தட்பம்

பிரிவு : இனிப்பு

Action:Stimulant, Carminative

"தாது நட்டம் பேதி சருவவிஷம் ஆகிய நோய்
பூதகிர கஞ்சிலந்திப் பூச்சிவிடஞ் - சாதிவிடம்
ஆட்டுமிரைப் போடிருமல் ஆகிய நோய்க் கூட்டாற
ஓட்டுமில வங்கத் துரி"

அ.கு

3. சதகுப்பை - Anethum graveolens

சுவை : இனிப்பு கார்ப்பு

தன்மை : வெப்பம்

பிரிவு : கார்ப்பு

Action: Antispasmodic, Stimulant, Stomachic, Carminative

"வாதமொடு சூதிகாவாதம் சிரசுநோய்
போதுசெவி நோய் **கபநோய் மூடுகபம்** - ஓதுகின்ற
மூலக் கடுப்பு **முதிர்பினிசம்** போகும்
ஞாலச் சதகுப்பை நாடு"

அ.கு

4. கருஞ்சீரகம் - Nigella sativa

சுவை : கைப்பு

தன்மை : வெப்பம்

பிரிவு : கார்ப்பு

Action : Stomachic, Carminative, Emollient

"கருஞ்சீ ரகத்தான் கரப்பனொடு புண்ணும்
வருஞ்சிராய்ப் பீநிசமு மாற்றும் அருந்தினால்
காய்ச்சல் தலைவலியுங் கண்வலியும் போமுலகில்
வாய்ச்ச் மருந்தெனவே வை"

அ.கு

5. ஏலம் - Elatteria cardamom

சுவை : கார்ப்பு

தன்மை : வெப்பம்

பிரிவு : கார்ப்பு

Action: Stimulant, Carminative, Stomachic

"தொண்டை வாய்கவுள் தாலுகு தங்களில்
தோன்றும் நோயதி சாரம்பன் மேகத்தால்
உண்டை போல் எழுங் கட்டி கிரிச்சரம்
உழலை வாந்தி சிலந்தி விஷஞ்சுரம்
பண்டை வெக்கை விதாகநோய் **காசமும்**
பாழுஞ் சோமப் பிணிவிந்து நட்டமும்
அண்டை யீளைவன் பித்தம் இவைக்கெல்லாம்
ஆல மாங்கமழ் ஏல மருந்ததே."

அ.கு

6. தனியா - Coriander Sativum

சுவை : கார்ப்பு
தன்மை : சீத வெப்பம்
பிரிவு : கார்ப்பு

Action: Stomachic, Carminative, Stimulant

"கொத்துமல்லி வெப்பம் குளிர்காய்ச்சல் பித்தமந்தஞ்
சர்த்தி**விக்கல்** தாகமொடு தாது நட்டம் - கத்தியெழும்
வாத விகார் மடர் வன்கர்த்த பிவிரணம்
பூதல்த்தில் லாதகநறும் போற்று"

அ.கு

7. சீரகம் - Cuminum cyminum

சுவை : இனிப்பு
தன்மை : தட்பம்
பிரிவு : இனிப்பு

Action: Carminative, Stimulant, Stomachic, Astringent

"வாந்தி யருசி குன்மம் வாய்நோய்பீ லிகமிரைப்
பேற்றிருமல் கல்லடைப்பி லாங்சனமும் - சேர்ந்தகம்மல்
ஆசனகு பாரியெனும் அந்தக் கிரகணியும்
போசனகு டாரியுண்ணப் போம்"

அ.கு

8. தாளிசபத்திரி - Abies spectabilis

சுவை : கார்ப்பு
தன்மை : வெப்பம்
பிரிவு : கார்ப்பு

Action : Expectorant, stomachic, carminative, tonic

"நாசி களப்பிணிகள் நாட்பட்ட - காசஞ்சு
வாசம் அருசி வணமங்கால் - வீசிவரு
மேகமந்தம் அத்திசாரம் விட்டேகுந் தாளிச்சத்தால்
ஆகுஞ் சுகப்பிரசவம்"

அ.கு

9. சிறுதேக்கு - Clerodendron serratum

சுவை : கைப்பு, துவர்ப்பு
தன்மை : வெப்பம்
பிரிவு : கார்ப்பு

Action : Stimulant

"கண்டுபா ரங்கியெனுஞ் சிறுதேக் குண்டேல்
காலேங்கே பித்தமெங்கே **கபந்தா னெங்கே**
தொண்டு தொட்டுத் **தொடர்சுவாச காச மெங்கே**
சுரமெங்கே வெறியெங்கே தொனிநோ யெங்கே"

அ.கு

10. திப்பிலி மூலம் - Root of Piper longum

சுவை : கார்ப்பு
தன்மை : வெப்பம்
பிரிவு : கார்ப்பு
Action : stomachic

"தாகபித்தஞ் சோகந் தணியாச் சுரமிருமல்
மேகங் **குரற்கம்மல்** மெய்க்கடுப்பும் - ஏகுங்காண்
திப்பிலிமூ லங்கண்டத் திப்பிலிய தாம்நறுக்குத்
திப்பிலியென் றேயொருக்காற் செப்பு."

அ.கு

11. செவ்வியம் - Piper nigrum

சுவை : கார்ப்பு
தன்மை : வெப்பம்
பிரிவு : கார்ப்பு
Action : Stomachic, Stimulant

"சூலை அருசிசன்னி **தொல்லிருமல்** ஈளைபித்தம்
மேலைக் **குரந்கம்மல்** வெங்கலிநோய் - மூலசுரம்
கவ்வியங்கத் தேறு கனதா வரவிடமுஞ்
செவ்வியங் கொள்ளிவிடுந் தேர்"

அ.கு

12. சடாமாஞ்சில் - Nardostachys jatamansi

சுவை : கார்ப்பு
தன்மை : வெப்பம்
பிரிவ : கார்ப்பு

Action : Anti-spasmodic, Expectorant, Stimulant

"குட்டஞ் சிலந்திவிடம் கோர புராண சுரம்
உட்டனங்கால் பேதிகண்ணோய் **ஓட்டிருமல்** சொட்டிரத்த
பித்தமிரைப் பேகும் பெருங்கோரை என்று ரைக்குஞ்
சுத்தசடா மாஞ்சிலை சொல்"

அ.கு

13. ஜாதிக்காய் - Myrstica fragrans

சுவை : துவர்ப்பு, கார்ப்பு
தன்மை : வெப்பம்
பிரிவு : கார்ப்பு

Action : Stimulant, Carminative,Tonic

"தாது நட்டம் பேதி சருவாசி யஞ்சிரநோய்
ஒதுசுவா சங்காசம் உட்கிரகணி - வேதோ
டிலக்காய் உரும்பிணிபோம் ஏற்றமயல் பித்தங்
குலக்கா யருந்துவர்க்குக் கூறு"

அ.கு

14. ஜாதிபத்திரி - Myrstica fragrans

சுவை : துவர்ப்பு
தன்மை : வெப்பம்
பிரிவு : கார்ப்பு

Action : Stimulant, carminative, Hypnotic

15. ஓமம் - Trachyspermum ammi

சுவை : துவர்ப்பு
தன்மை : வெப்பம்
பிரிவு : கார்ப்பு

Action : Anti-spasmodic, stomachic, Carminative, Stimulant, Tonic

"சீதசுரங் **காசஞ்** செரியாமந் தம்பொருமல்
பேதியிரைச் சல்கடுப்பு பேராமம் - **ஓதிருமல்**
பல்லொடுபல் மூலம் பகமிவைநோ யென் செயுமோ?
சொல்லொடுபோம் ஓமமெனச் சொல்"

அ.கு

16. கோஷ்டம் - Costus speciosus

சுவை : கைப்பு, விறுவிறுப்பு
தன்மை : வெப்பம்
பிரிவு : கார்ப்பு

Action : Expectorant, Stimulant, Stomachic

"திட்டிகவுள் அகடுகளஞ் சென்னி நாவாய்
செறிபிணிவெப் பதைப்புதா வர்த்தம் ஊதை
முட்டியெழு முளைவிரணம் **சுவாச காசம்**
மூடிகத்தோ டரவுமர விடங்கள்"

தே.கு

17. குரோசாணி ஓமம் - Hyocyamus niger

சுவை : கார்ப்பு, சிறுகைப்பு
தன்மை : வெப்பம்
பிரிவு : கார்ப்பு

Action : Anti – spasmodic

"வெகுமூத்தி திரம்வாதம் விரியநட் டம்புண்
உகுபேதி யுட்கடுப்பி னோடே- மிகுகரப்பான்
தீராக் கபமிவைபோம் செய்யகு ரோசானி யென்றால்
வாரா மயக்கமுறு மால்"

அ.கு

18. வாய்விளங்கம் - Embelia ribes

சுவை : கைப்பு

தன்மை : வெப்பம்

பிரிவு : கார்ப்பு

Action : Stimulant, Stomachic, Carminative

"பாண்டு - குட்டம் குன்மம் பருந்தூல் நோய் வாதந்
தீண்டு திரிவிடஞ் சிரந்துண்டம் - பூண்டமடி
நோய் விளங்கக் காட்டாத **நுணக்கிருமி** யாசனப்புண்
வாய்விளங்கங் காட்ட விருமார்"

அ.கு

19. மாசிக்காய் - Quereus infectoria

சுவை : துவர்ப்பு

தன்மை : தட்பம்

பிரிவு : கார்ப்பு

Action : Astringent, Tonic

"**அக்கரங்கள் போக்கிவிடும் மாறாத வெப்பகற்றும்**
மெய்க்குறுதி மாசிக்காய் மென்மேலும் தக்கதொரு
பாலர்**கண நோய்**போக்கும் பன்மேக முந்தொலைக்கும்
வேலனைய கண்ணாய் விளம்பு"

அ.கு

20. அக்கரகாரம் - Anacyclus pyrethrum

சுவை : கார்ப்பு

தன்மை : வெப்பம்

பிரிவு : கார்ப்பு

Action : Stimulant, Sialagogue

"அக்கராக் காரஞ் செய்யு மடவிது தன்னைக் கேளாய்
விக்கலுந் தடிப்பு மாற்றும் **மிடறுகள் பாடிவிக்குங்**
சுக்குமா ரோசிக கங்க ளடிநவ தோஷம் போகும்
இப்படி கொள்வ தற்கு இதமுடன் சொன்ன ரீதே"
"அக்கிரா காரத்தை ஆரறியப் போறார்காண்
உக்கிரகா லத்தோஷ மோடுமே - திக்கு மொழி
கொண்டாற்கு நாத்திரும்பும் கொம்பனையே! கேளீர்
கண்டார்க்குத் தோடமிலை காண்"

அ.கு

21. சமுத்திரப் பழம் - Barringtonia acutangula

சுவை : கைப்பு
தன்மை : வெப்பம்
பிரிவு : கார்ப்பு

Action : Expectorant

22. சிறுநாகப்பூ - Mesua ferrea

சுவை : சிறுகைப்பு, துவர்ப்பு
தன்மை : தட்பம்
பிரிவு : கார்ப்பு

Action : Astringent, Carminative

"சிறுநாகப் பூவினது செய்கைதனைச் சொல்வோம்
குறியாகும் மேகத்தைக் கொல்லும் - நெறிவிட்டுத்
தீதாய்ச் செல்வாயவையுந் தீர்க்குமிரு மற்போக்கும்
கோதாய்! இதையறிந்து கொள்"

அ.கு

23. சிற்றரத்தை - Alpinia officinalis

சுவை : கார்ப்பு

தன்மை : வெப்பம்

பிரிவு : கார்ப்பு

Action : Expectorant, Stomachic

"தொண்டையிற்கட் டுங்கபத்தைத் தூரத் துரத்திவிடும்
பண்டைச்சீ தத்தைப் பறக்கடிக்கும்".

அ.கு.

"மார்பை யடர்பிணிசு வாசகா சம்மூலம்
சோபைதட்டச் சூர்வாத சோணிதநோய் - தீபச்
சுரத்தை யடுப்புர்பல் தூருறுகண் நேரின்
அரத்தை யெடுதுகள தாம்" தே.கு

"அரத்தையின் குணத்தைகேளீர் அக்கரஞ்
சன்னி போக்கும் **உரத்தொரு இருமல் மாற்றும்** ஓங்கிய உதிரம் போக்கும்
இரைத்திடுங் **காச மெட்டும்** விஞ்சிய கூடியமுந்தீரும்
சுரத்தையும் நீக்கு மென்று சொன்னது வேத நூலே"

ஏடு

24. சுக்கு - Zingiber officinale

சுவை : கார்ப்பு

தன்மை : வெப்பம்

பிரிவு : கார்ப்பு

Action : Stimulant, Stomachic, Carminative

"சூலைமந்தம் நெஞ்செரிப்பு தோடமேப் பம்மழலை
மூலம் **இரைப்பிருமல் மூக்குநீர் - வாலகப**
தோடமதி சாரஞ் தொடர்வாத குன்மநீர்த்
தோடம் ஆ மம்போக்குஞ் சுக்கு"

அ.கு

25. மிளகு - Piper nigrum

சுவை : கைப்பு, கார்ப்பு
தன்மை : வெப்பம்
பிரிவு : கார்ப்பு
Action : Stimulant, Stomachic, Carminative

"சீதசுரம் பாண்டு **சிலேத்மங்** கிராணிகுன்மம்
வாதம் அருசிபித்தம் மாமூலம் - ஓதுசன்னி
யாசமபஸ் மாரம் அடன்மேகம் - **காசமிவை**
நாசங் கறிமிளிகினால்

அ.கு

26. திப்பிலி - Piper longum

சுவை : கார்ப்பு
தன்மை : வெப்பம்
பிரிவு : கார்ப்பு
Action : Stimulant, Carminative, Expectorant

"**ஈளை யிருமல் விரைப்புப் பசப்பிணிகள்**
மாலி வொழியாமல் வாட்டுமே யாளுமுறை
பாங்கா யறிந்து செய்வீர் பண்டிதத்தைப் பண்டிதரே
வேங்கை வாய்ப் பான்கணை மெய்"

தே.வெ.

27. பொன்முசுட்டைவேர் - Sida acuta

சுவை : கைப்பு

தன்மை : வெப்பம்

பிரிவு : கார்ப்பு

Action : Expectorant, Stomachic, Tonic

" வாதமொடு பித்தத்தை மாற்றுமே மாநிலத்திற்

சீத மகற்றும் தினவடக்கும் - மாதேகேள்!

உண்டிக்கும் வாசனையாம் ஓங்கி வலிரனலைக்

கண்டிக்கும் பொன்முசுட்டை காண்"

அ.கு

28. விலாமிச்சு வேர் - Plectanthrus vetiveroides

சுவை : கைப்பு

தன்மை : சீதம்

பிரிவு : இனிப்பு

Action : Anti – pitha

" மேகம் விழியெரிச்சல் வீறிரத்த பித்தமொரு

தாதகமத மூர்ச்சைபித்தந் தன்மயக்கம் - சோகஞ்

சிரநோய் இவையேகுஞ் செய்யவிலா மிச்சுக்

கெரிசுரமும் இல்லை யிசை"

அ.கு

29. வெந்தயம் - Trigonella foenum graecum

சுவை : கைப்பு

தன்மை : தட்பம்

பிரிவு : கார்ப்பு

Action : Carminative, Astringent, Demulcent

"பித்தவுதி ரம்போகும் பேராக் கணங்களும்போம்

அத்திசுரந் தாகம் அகலுங்காண் - தத்துமதி

வேக **இருமலொடு வீறு கயம் தணியும்**

போகமுறும் வெந்தயத்தைப் போற்று."

அ.கு

QUALITATIVE PHYTOCHEMICAL ANALYSIS OF TRIAL DRUG ILLAVANGATHI CHOORNAM

The extract of the trial drug, Ilavangathi choornam in the dichloromethane solvent is subjected to chemical tests for identification of its active constitutents.

1. Test for alkaloids
    a) Mayer's Reagent - absent
    b) Dragendorff's Reagent - absent

2. Test for Carbohydrates and glycosides
    a) Benedict's reagent - Present

3. Test for Proteins and amino acids
    a) Ninhydrin Reagent - absent
    b) Biuret Reagent - absent

4. Test for Phenolic Compounds and Tannins
    a) Ferric Chloride Test - Present

5. Test for Phytosterol
    a) Libermann – Burchard's Test - Present

6. Test for fixed oils and fats

   a) Spot Test - absent

7. Test for Saponins

   a) Foam test - absent

8. Test for gums and mucilages - absent

9. Test for volatile oil - present

BIOCHEMICAL ANALYSIS

Tests for		Result
Calcium	-	Absent
Sulphate	-	Absent
Chloride	-	Present
Phosphate	-	Absent
Carbonate	-	Absent

TOXICITY STUDY IN ANIMALS

ACUTE TOXICITY STUDIES:

In order to assess the safety of a drug various toxicity studies are carried out in animals under varying conditions of drug administration. The LD_{50} is determined trial drug using albino rats. Doses of the compound are given to 5 groups of albino rats each in a geometrical progression starting with a dose of 175 mg / kg and mortality in 24 hrs recorded.

PROCEDURE:

ACUTE ORAL TOXICITY (24 hrs observation) up and down procedure (OECD 425)

1. Animals - Albino rats (recommended species)
2. Sex - Female (non pregnant)
3. Group - Five groups
4. Total number of animals used – 15
5. Dose levels used :

   175 mg / kg

   520 mg / kg

   1000 mg / kg

   2000 mg / kg

   5000 mg / kg

6.

Sl.No.	Dose level	No. of animals exposed	No. of animals showing toxicity
1.	175 mg / kg	3	Nil
2.	520 mg / kg	3	Nil
3.	1000 mg / kg	3	Nil
4.	2000 mg / kg	3	Nil
5.	5000 mg / kg	3	2 (hyperactive)

7. Body weight - 175 - 250 g

8. Time of dosing - 9.30 am on 8.03.2007

Time of toxic effect after dosing- 7.45 am on 9.03.2007

9. No macroscopical changes observed in all groups

10. Toxic effects - 175 mg / kg - Normal

After 4 hours 520 mg / kg - Normal with increased movement

After 4 hours 1000 mg / kg - Active, grooming behaviour

After 3 hours 200 mg / kg - Active, somersault acting, rearing action

5000 mg / kg - Hyperactive, aggressive increased fighting behaviour

After 6 hrs of dosing - moribund animals

11. Caging conditions:

Animals are housed in polypropylene cages of 3 animals / cage

i).	Bedding material	:	Rice Husk
ii).	Temperature	:	22 – 25^{o}C
iii).	Humidity	:	50%
iv).	Photoperiod	:	12 hr light, 12 hr dark cycle
v).	Diet	:	Standard pellet diet (Hindustan lever & co / Bangalore) Water ad libitum

12. Vehicle used for suspending test substance: corn oil

13. Route: Oral

14. Observation period: 24 hrs

15. 2000 mg / kg is the LD_{50} and the dose fixed is 1/10 of LD_{50} - 200 mg / kg

CONCENTRATION RESPONSE OF HISTAMINE AND MODIFICATION AFTER THE TEST DRUG

AIM:

To record the concentration ~ response curve of histamine and its modification by an anti – histamine using guinea pig ileum preparation.

PRINCIPLE:

Histamine is an antacid having profound physiological effect in the body besides the triple response caused by it, histamine has spasmogenic response on intestinal smooth muscle. By acting on H1 – histamine receptors it causes the concentration of intestinal smooth muscle.

- Guinea pig is highly sensitive to histamine
- The Guinea pig ileum preparation is very commonly used for isolated tissue work.
- Overnight animals are used to get better response on drugs on intestinal smooth muscles.

REQUIREMENTS:

Animal: Guinea pig (400 - 600 gm, overnight fasted)
Drugs : Histamine stock solution (1 mg / ml)
Physiological solution: Tyrode
Test drug: Ilavangathi choornam (1 mg / ml)

PROCEDURE:

- The Guinea pig is sacrificed by a blow on the head and carotid bleeding.
- Cut open the abdomen and lift the caecum to trace the ileo caecal junction.
- Cut and remove a few centimeter long of the ileal portion and immediately place it in the watch glass containing tyrode solution
- Trim the mesentery and with gentle care clean the contents of the ileum by pushing the tyrode solution into the layers of the ileum.
- Take on Piece of ileum of 2-3 cm long and tie the thread to top and the bottom and without closing the layers.
- Tyrode solution maintained at 32-35^{o}C and bubbled with oxygen or air.
- A tension of 0.5 gm is applied and the tissue is allowed to calibrate for 30 minutes before adding drugs to organ bath.
- Record concentration dependent response due to histamine using frontal writing lever.
- Contact times of 30 sec and 5 min. time cycle are kept for proper recording of the response.
- Record atleast four concentration dependent response due to histamine.
- Add the trial drug to the reservoir containing tyrode solution and irrigate the tissue with antagonist containing tyrode for 30 minutes.
- Repeat the concentration response curve of histamine in the presence of trial drug.

- Label and fix the tracing and plot the graph as done in the experiment.

RESULT:

Response of Histamine which contracts smooth muscle is decreased after the administration of test drug. Hence the given sample may have a smooth muscle dilating property.

PRANAYAMAM

The science of breath is called PRANAYAMAM it consist of Prana and Ayamam. Prana means life force or the vital energy. Ayamam means control i.e. control of breath. Life force is invisible, we cannot get hold of it. But, we know it is outward manifestation in the form of inspiration and expiration.

The gross manifestation of the life force of the physical body in the motion of the lungs. The first action of prana is expansion and contraction. So by breath we mean that the force which keeps the lungs active from the grosser to the subtle. The subtle force or energy is manifesting itself in the form of expansion is manifesting itself in the form of expansion and contraction.

If every atom is charged with prana, then by stimulating the vibratory conditions of that prana which are now going on in our system, we shall be able to stimulate all the atoms, which make up the molecules and cells of the body and make them vibrate on a higher plane and manifest more energy and more powers.

The act of breathing consists of three steps, namely

a. The expulsion of the air from the lungs and drawing in of fresh air from outside
b. The retention of it in the lungs, to allow the exchange of gases that take place between the blood and the air breathed in.
c. Then expulsion of air from the lungs.

The rechaka is biologically more important because it is an act of elimination, whereby the air spaces in the lungs are to be emptied of the foul air. To the extent that the retained air is thrown out by rechaka and only to that extent – can the fresh air enter the lungs by the next puraka, the breathing in. If the emptying is defective, some of the foul air is retained and to that extent less fresh air comes in. Hence the great importance of rechaka in practicing better breathing. If the emptying be made as thorough as possible, then more fresh air is drawn in and more oxygen is obtained by the next puraka, even though no effort is made to improve that part of breathing. So it is here recommended that, to begin with, the follower should confine his attention and efforts to the improvement of the rechaka and the kumbhaka. By this method alone, a considerable improvement in health will come in course of time.

In the practice of breathing, the aim should be to increase the time taken for each breath, so that it should become more perfect and profitable. When this is done, there will be a reduction in the number of breathes taken in a single unit of time, but the breathing will become better and supply more oxygen to the blood, with less effort. Only after the rechaka becomes perfect, so that by that above, a considerable improvement of the whole constitution and of the the lungs is achieved.

In the puraka, the air must be slowly and steadily drawn in, so that, first the diaphragm the floor fof the upper part of the trunk, should be pressed down; the breathing should not now be stopped, but must be continued, so that the chest expands sideways, the ribs rising up and allowing the top of the lungs to be filled with fresh air. In this latter process, the belly which has been

pushed outwards at first is drawn in again. This is deep breathing. When this is mastered, then it will be time to take up the improvement of the kumbhaka.

While doing the pranayama, the individual should sit erect or stand erect. Bed ridden patients, capable of doing pranayama can do it even on the bed, but to ensure correct posture they should be on a hard bed and not on a soft one. The dress worn at the waist should be kept slightly lose so that no pressure is felt on the ablomen. The dress, on the trunk of worn, should also be slightly loose to allow the lungs to expand & contract easily.

The pranayama should be done either early in the morning or at dusk in the evening, when the stomach is empty. It should never be done when the stomach is loaded. A few rounds of pranayama say 10, 15, or 20, could be done each time.

The mode of holding the fingers of the right hand for doing pranayama is explained. With the right thumb, the right nostril is gently closed and the individual should do the rechaka through the left nostril slowly, gently, without feeling any kind of strain, but to the fullest extent possible. When the rechaka is completed than then do puraka through the left nostril and gently & slowly as possible and do kumbhaka. Now rechaka done gently but to the fullest extent possible through right nostril. For doing rechaka and puraka the nostrils can be alternated. No exertion or force whatever is to be indulged in, for doing any one or more stages of this pranayama for a longer than what can conveniently done by the individual.

YOGASANAM

Yoga is the discipline leading to and the experience of reunion of the embodied individual soul (JIVATMA) with the universal soul (PARAMATMA) of which it is a partial expression.

For the patients of Iya Eraippu noi, few following yogasans are suggested to benefit their health.

- VIBAREETHAKARANI
- SARVANGASANAM
- DHANURASANAM
- ARTHA MATCHENDRASANAM
- BHUJANGASANAM
- MATCHASANAM

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BRANCH I MARUTHUVAM

DR. M.G.R. UNIVERSITY

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY
Chennai

NATIONAL INSTITUTE OF SIDDHA,
Tambaram, Chennai – 47

SEPTEMBER 2007

CONTENT

NATIONAL INSTITUTE OF SIDDHA, CHENNAI – 47

AN OPEN CLINICAL TRIAL OF ILAVANGATHI CHOORNAM FOR THE TREATMENT OF IYA ERAIPPU (BRONCHIAL ASTHMA)

FORMI - SELECTION PROFORMA.

1. OP/ IP NO :…….. 2 .Bed NO:…… 3. S. NO:……

4. Name:……5 . Age(Yr) :…… 6. Gender: M ☐ F ☐

7. Postal address:……..

……..

……Contact No……..…….

8. Complaints & Duration:

9. History of present illness:

10. Past history:

11. Family history: 1. No ☐ 2. Yes. ☐ …….

12. Occupational history: Present: …….

Previous: ……...

HABITS:

	Yes	No
13. Smoker	☐	☐
14. Alcoholic	☐	☐
15. Betel nut chewer	☐	☐
16. Non - vegetarian	☐	☐

GENERAL EXAMINATION

17. Body weight (Kg) : ☐☐

18. Temperature (°F) : ☐☐☐

19. Pulse rate / min : ☐☐☐

20. Heart rate / min : ☐☐☐

21. Respiratory Rate / min : ☐☐

22. Blood Pressure (mmHg) : ☐☐☐ / ☐☐☐

	Yes	No
23. Pallor	☐	☐
24. Jaundice	☐	☐
25. Clubbing	☐	☐
26. Cyanosis	☐	☐
27. Pedal Oedema	☐	☐
28. Lymphadenopathy	☐	☐
29. Jugular Venous Pulsation	☐	☐

SYSTEMIC EXAMINATION

A) INSPECTION

30. Build: 1. Asthenic ☐ 2.Normosthenic ☐ 3.Sthenic ☐

31. Shape of the chest: 1. Normal ☐ 2.Asymmetrical ☐

32. Skin over the chest wall:

1. Normal ☐ 2. Engorged vein ☐

3. Discharging sinuses ☐ 4. Intercostal scar ☐

	Present	Absent
33. Accessory muscles of inspiration	☐	☐
34. Dyspnoea on exertion	☐	☐
35. Dyspnoea at rest	☐	☐

B) PALPATION

36. Position of Trachea: 1.At midline ☐ 2.Deviated ☐

37. Vocal fremitus 1. Normal ☐ 2. Increased ☐ 3. Decreased ☐

38. **AUSCULTATION**

1. Widespread polyphonic high pitched wheeze ☐
2. Expiratory wheeze ☐
3. Inspiratory &Expiratory wheeze ☐
4. Inspiratory wheeze ☐
5. Normal vesicular breath sound ☐

CLINICAL EXAMINATION

	Present	Absent
39. Dyspnoea	☐	☐
40. Non productive cough	☐	☐

41. Wheezing

1. Mild intermittent ☐
2. Mild persistent ☐
3. Moderate persistent ☐
4. Severe persistent ☐

Trigger Factors

	Yes	No
42. Cold air	☐	☐
43. Tobacco smoke	☐	☐
44. Dust and fumes	☐	☐
45. Exercise	☐	☐
46. Viral infection	☐	☐
47. Drugs	☐	☐

48. Emotion

49. Occupation

	Present	Absent
50. Sense of constriction of chest		
51. Accessory muscles of respiration		

Sputum

52. Colour 1. White 2.Green 3.Yellow

53. Amount 1.Less 2.More

54. Consistency 1.Mucoid 2.Purulent 3.Frothy

Peak Flow Meter

55. PEFR (Peak expiratory flow rate) -

EXAMINATION OF VITAL ORGANS

		Normal	Abnormal
56. CVS	:		
57. RS	:		
58. Abdomen	:		

SIDDHA ASPECTS

59. NILAM:

1. Kurinji 2. Mulla 3. Marutham 4. Neithal 5. Palai

60. KALA IYALBU:

1. Kaarkaalam 2. Koothirkaalam 3. Munpanikaalam

4. Pinpanikaalam 5. Ilavenirkaalam 6.Muduvenirkaalam

61. YAKKAI:

1. Vali ☐ 2.Azhal ☐ 3.Iyam ☐ 4. Vali azhal ☐ 5.Valiiyam ☐

6. Azhalvali ☐ 7.Azhaliyam ☐ 8. Iyavali ☐ 9. Iyaazhal ☐

62. GUNAM:

1. Sathuvam ☐ 2. Rasatham ☐ 3. Thamasam ☐

PORI PULANGAL

	Normal	Affected
63. Mei	☐	☐
64. Vai	☐	☐
65. Kan	☐	☐
66. Mooku	☐	☐
67. Sevi	☐	☐

KANMENDHIRIUM / KANMAVIDAYAM

	Normal	Affected
68. Kai	☐	☐
69. Kaal	☐	☐
70. Vai	☐	☐
71. Eruvai	☐	☐
72. Karuvai	☐	☐

UYIR THATHUKKAL

VALI

	Normal	Affected
73. Pranan	☐	☐
74. Abanan	☐	☐
75. Viyanan	☐	☐
76. Uthanan	☐	☐
77. Samanan	☐	☐
78. Nagan	☐	☐
79. Koorman	☐	☐
80. Kirukaran	☐	☐
81 Devathathan	☐	☐
82 Dhananjeyan	☐	☐

AZHAL

	Normal	Affected
83. Analam	☐	☐
84. Ranjagam	☐	☐
85. Sathagam	☐	☐
86. Alosagam	☐	☐
87. Prasagam	☐	☐

IYAM

	Normal	Affected
88. Avalambagam	☐	☐
89. Kilethagam	☐	☐
90. Pothagam	☐	☐
91. Tharpagam	☐	☐
92. Santhigam	☐	☐

UDAL THATHUKKAL

	Normal	Affected
93. Saaram	☐	☐
94. Senneer	☐	☐
95. Oon	☐	☐
96. Kozhuppu	☐	☐
97. Enbu	☐	☐
98. Moolai	☐	☐
99. Sukilam / Suronitham	☐	☐

ENVAGAI THERVUGAL

	Normal	Affected
100. Naa	☐	☐
101. Niram	☐	☐
102. Mozhi	☐	☐
103. Vizhi	☐	☐
104. Sparisam	☐	☐
105. Naadi	☐	☐

Malam

	Normal	Affected
106. Niram	☐	☐
107. Edai	☐	☐
108. Erugal	☐	☐
109. Elagal	☐	☐

MOOTHIRAM

Neerkuri

	Normal	Affected
110. Niram	☐	☐
111. Manam	☐	☐
112. Edai	☐	☐
113. Nurai	☐	☐
114. Enjal	☐	☐

Neikuri

1. Aravam	☐	2.Moothiram	☐
3. Muthu	☐	4.Aravil mothiram	☐
5. Aravil muthu	☐	6.Mothirathil muthu	☐
7. Mothirathil aravam	☐	8.Muthil aravam	☐
9. Muthil mothiram	☐	10.Asathiyam	☐

LAB INVESTIGATIONS

BLOOD

115. TC (Cells / Cu.mm) ☐☐☐☐

DC (%) 116.N-☐☐ 117. L-☐☐ 118. M-☐☐ 119. E-☐☐ 120.B-☐☐

ESR (mm) 121.½ hr-☐☐ 122.1 hr-☐☐

123. Hb (gm %) -☐☐☐☐

124. Total RBC Count (million cells/cu.mm) -☐☐

Blood sugar (mg %)

125. Fasting ☐☐☐☐ 126. Post prandial ☐☐☐☐ 127. Random ☐☐☐☐

URINE

	Present	Absent
128. Albumin	☐	☐
129. Sugar	☐	☐

Deposit

	Present	Absent
130. Pus cells	☐	☐
131. Epithelial cells	☐	☐
132. RBC	☐	☐
133. Casts / crystal	☐	☐

MOTION

	Present	Absent
134. Ova	☐	☐
135. Cyst	☐	☐
136. Occult Blood	☐	☐

INCLUSION CRITERIA	Yes	No
137. Age 12 to 80 yrs.	☐	☐
138. Willing to be admitted in the Hospital for 30 days or willing to attend the O.P.D. once in 10 days.	☐	☐

EXCLUSION CRITERIA	Yes	No
139. Smoking,	☐	☐
140. Alcohol consumption.	☐	☐
141. History of epilepsy or ischaemic heart disease.	☐	☐
142. Pregnancy	☐	☐
143. Lactation.	☐	☐

144. Admitted to trial: 1. Yes ☐ 2. No ☐

145. If yes, S.No: ☐☐ 146.OP/IP 1. O.P: ☐ 2. I.P: ☐

147. Drugs Issued for O.P Patients (Dosage in gm): ☐☐☐

148. Date: ☐☐☐☐☐☐

149. Station ……

Signature of Doctor

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FORM – II ASSESSMENT FORM

1. OP/IP.NO:_____ 2.Bed NO: _____ 3. S.NO:_____

4. NAME: _____5.AGE (Yr): _____ 6. GENDER M ☐ F ☐

7. DATE OF ADMISSION: ☐☐☐☐☐☐

8. DATE OF ASSESSMENT: ☐☐☐☐☐☐

9. NO: OF ASSESSMENT: 11 21 31

CLINICAL ASSESSMENT:

	Present	Absent
10. Dyspnoea	☐	☐
11. Non productive cough	☐	☐

12. Wheezing
    1. Mild intermittent ☐
    2. Mild persistent ☐
    3. Moderate persistent ☐
    4. Severe persistent ☐

Trigger Factors

	Yes	No
13. Cold air		
14. Tobacco smoke		
15. Dust and fumes		
16. Exercise		
17. Viral infection		
18. Drugs		
19. Emotion		
20. Occupation		

	Present	Absent
21. Sense of constriction of chest		
22. Accessory muscles of respiration		

Sputum

23. Colour: 1.White ☐ 2.Green ☐ 3.Yellow ☐

24. Amount: 1.Less ☐ 2.More ☐

25. Consistency: 1.Mucoid ☐ 2.Purulent ☐ 3.Frothy ☐

Peak Flow Meter

26. PEFR (Peak expiratory flow rate) - ☐☐☐

SYSTEMIC EXAMINATION

A) INSPECTION

27. Build: 1. Asthenic ☐ 2.Normosthenic ☐ 3.Sthenic ☐

28. Shape of the chest 1. Normal ☐ 2.Asymmetrical ☐

29. Skin over the chest wall.

1. Normal ☐ 2. Engorged vein ☐

3. Discharging sinuses ☐ 4. Intercostals scar ☐

	Present	Absent
30. Accessory muscles of inspiration	☐	☐
31. Dyspnoea on exertion	☐	☐
32. Dyspnoea at rest	☐	☐

B) PALPATION

33. Position of Trachea: 1. at midline ☐ 2.deviated ☐

34. Vocal fremitus: 1. Normal ☐ 2. Increased ☐ 3. Decreased ☐

35. **AUSCULTATION**

1. Widespread polyphonic high pitched wheeze ☐
2. Expiratory wheeze ☐
3. Inspiratory &Expiratory wheeze ☐
4. Inspiratory wheeze ☐
5. Normal vesicular breath sound ☐

SIDDHA ASPECT

ENVAGAI THERVUGAL

	Normal	Affected
36. Naa	☐	☐
37. Niram	☐	☐
38. Mozhi	☐	☐
39. Vizhi	☐	☐
40. Sparisam	☐	☐
41. Naadi	☐	☐

Malam

	Normal	Affected
42. Niram	☐	☐
43. Edai	☐	☐
44. Erugal	☐	☐
45. Elagal	☐	☐

MOOTHIRAM

Neerkuri

	Normal	Affected
46. Niram	☐	☐
47. Manam	☐	☐
48. Edai	☐	☐
49. Nurai	☐	☐
50. Enjal	☐	☐

51. **Neikuri:**

1. Aravam	☐	2.Moothiram	☐
3. Muthu	☐	4.Aravil mothiram	☐
5. Aravil muthu	☐	6.Mothirathil muthu	☐
7. Mothirathil aravam	☐	8.Muthil aravam	☐
9. Muthil mothiram	☐	10.Asathiyam	☐

FOR O.P. PATIENTS:

52. Drugs Returned
    1. No. of gm:

53. Drugs Issued:
    2. No. of gm:

LAB INVESTINGATIONS: (at the end of 30Days)

BLOOD:

54. TC (Cells / Cu.mm) ☐☐☐☐

DC (%) 55. N-☐☐ 56. L-☐☐ 57.M-☐☐ 58.E-☐☐ 59.B-☐☐

60. Total RBC Count (million cells/cu.mm)-☐☐

ESR (mm) - 61. ½ hr-☐☐ 62.1 hr-☐☐

63. Hb (gm %) -☐☐☐☐

URINE

	Present	Absent
64. Albumin	☐	☐
65. Sugar	☐	☐

Deposit

	Present	Absent
66. Pus cells	☐	☐
67. Epithelial cells	☐	☐
68. RBC	☐	☐
69. Casts / crystal	☐	☐

70. Date: ☐☐☐☐☐☐

71. Station:…….

Signature of Doctor

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CONSENT FORM

Certificate by investigator

I certify that I have disclosed all details about the study in the terms readily understood by the patient.

Date: ……. Signature: ……..

Name: ……

Consent by Patient

I have been informed to my satisfaction, by the attending physician, the purpose of the clinical trial, and the nature of drug treatment and follow-up including the laboratory investigations to be performed to monitor and safeguard my body functions.

I am aware of my right to opt out of the trial during the course of the trial without having to give the reasons for doing so.

I, exercising my free power of choice, hereby give my consent to be included as a subject in the clinical trial of Ilavangathi choornam for the management of Iya eraippu.

Date: …… Signature: ……
Name: ……..

Date: ……. Signature of witness: …….
Name: ……
Relationship: …….

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